



up heart

1868.

RESULTS
OF
ASTRONOMICAL OBSERVATIONS
MADE AT THE
RADCLIFFE OBSERVATORY,
OXFORD,
IN THE YEAR
1866,

UNDER THE SUPERINTENDENCE OF
THE REV. ROBERT MAIN, M.A.,
RADCLIFFE OBSERVER.

Vol. XXVI

OXFORD,
1868.



OXFORD:

BY T. COMBE, M.A., E. B. GARDNER, F. P. HALL, AND H. LATHAM, M.A.,

PRINTERS TO THE UNIVERSITY.

ERRATA.

VOL. XXV, for 1865.

Pages viii and ix. By inadvertence the Tables on these pages have been continued from the preceding volume, though the intervals of new wires, inserted at the end of the year 1864, were computed and used in 1865. The reader is requested to *substitute* the corresponding Tables found at pages viii and ix of the volume for 1866.

Page

- xxviii Line 13 from the bottom, *for* one interval *read* three intervals.
 43 B.A.C. 5690, Mean N.P.D., *for* $121^{\circ} 7' 10''.88$ *read* $121^{\circ} 5' 9''.41$.
 102 " " *for* $121^{\circ} 7' 11''.77$ *read* $121^{\circ} 5' 10''.80$; and add the
 note, "The N.P.D. is smaller than that of the B.A.C. by $2' 3''.20$."

VOL. XXVI, for 1866.

- 20 β Aurigæ, column mag., *dele* 7.0.
 25 λ Geminorum, Mean R.A., *for* $23^{\circ} 97$ *read* $23^{\circ} 47$.
 35 Name of Star, *for* α Leonis *read* α Leonis.
 39 ζ Virginis, Mean N.P.D., *for* $89^{\circ} 34'$ *read* $89^{\circ} 54'$.
 61 β Delphini, Reflexion, *for* 72° *read* 75° .
 70 Σ 3054. The star observed was the brighter or north star.
 77 Constants for Stars, Σ 2988, log. d , *for* $+8.1620$ *read* -8.1620 .
 78 " " W.B. (2) XXIII. 821, log. d' , *for* 0.6425 *read* 9.6425 .
 80 Radcliffe 3075, log. d for 1865, *for* $9.6, 69$ *read* $9.9, 69$.
 95 No. 50, ν Piscium, Mean N.P.D., *for* $63^{\circ} 36'$ *read* $63^{\circ} 26'$.
 96 No. 82, γ Trianguli, Mean N.P.D., *for* 46° *read* 56° .
 97 No. 135, Name of Object, *for* α Persei *read* α Persei.
 102 λ Geminorum, Mean R.A., *for* $23^{\circ} 97$ *read* $23^{\circ} 47$.
 107 γ Crateris, Mean N.P.D., *for* 100 *read* 106.
 140 Groombridge 3516 and 3517, Mean of Measures in Arc, *for* $59''.78$ *read* $179''.78$.

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INTRODUCTION

TO THE

ASTRONOMICAL OBSERVATIONS OF

1866.

SECTION I.—*Personal Establishment ; Instruments ; and Subjects of Observation.*

PERSONAL ESTABLISHMENT.—The Establishment of Assistants of the Observatory during the year 1866 was precisely the same as that which existed in the preceding year. The first assistant was, as before, Mr. Adolphus Quirling, and the second assistant Mr. John Lucas. Mr. William Luff, was, as before, computer to the Establishment, and was occupied mainly with the reduction of the observations of zenith-distance made with the Transit Circle. Mr. Lucas took charge, as in the preceding year, of the Photographic Meteorology, as is more particularly mentioned in the Introduction to the Meteorological Observations. The greater part of the reductions of the transit observations made with the Transit Circle was performed by myself, together with those of the Occultations of Stars by the Moon, and of the Measures of Double Stars, &c. made with the Heliometer.

INSTRUMENTS.—The *Carrington Transit Circle* has been used for meridional observations throughout the year, the principal subject of observation being the stars which remain unobserved of the British Association Catalogue, as in the preceding year, 1865; in addition to a considerable number of Struve's Double Stars which have been observed with the Heliometer, and a selected list of stars from various Catalogues, from the 7th to the 8th magnitudes, lying in a zone between 50° and 70° N.P.D. A detailed description of this instrument will be given farther on.

The Transit Instrument.—This instrument was in use till the end of the year 1861, when it was replaced by the Transit Circle. It was removed from the west to the east transit room in September 1861. It is kept in good condition, and is available for any purpose for which it may be required, and especially for practice of students of the University. A description of it will be found in vols. I and IV of the *Radcliffe Observations*.

The Meridian Circle.—This instrument was also thrown out of use at the end of 1861, and is also available for purposes of instruction. It is fully described in vol I of the *Radcliffe Observations*.

The other available instruments belonging to the Observatory are, 1st, the *Heliumeter*, of which a description will be given farther on; 2nd, a telescope of 10 feet focal length and 7 inches aperture, mounted equatorially on the south front of the Observatory, and used in connexion with a journeyman clock, striking at the termination of each minute; and, 3rd, a 42-inch achromatic telescope, with triple object-glass of $3\frac{3}{4}$ inches. There is also a smaller telescope unmounted, of $2\frac{1}{2}$ inches aperture, which has occasionally been used. Observations and discoveries made with the 10-foot telescope in former years by Mr. Pogson have occasionally appeared in the *Astronomische Nachrichten* and in the *Monthly Notices* of the Royal Astronomical Society.

The ancient instruments out of use consist of two brass 8-foot quadrants by Bird, and a 12-foot zenith-sector, in connexion with which may be mentioned an old barometer by Bird. There is also a 10-foot Newtonian telescope by Sir. W. Herschel, of which the stand is now (1868) under repair.

The principal clocks belonging to the Observatory are four in number: namely, two with mercurial compensation pendulums, by Dent, used with the transit circle and the heliometer; and two with gridiron pendulums, the first of which, by Shelton, is in the apartment of the meridian circle, and the second, by Hawting, in the east transit room. The three first mentioned are excellent instruments; the last is an old clock, (still useful,) but of an inferior character. There is also a clock with wooden pendulum, which stands in the central hall, and serves to give time for the regulation of ordinary business.

A pocket chronometer by Hardy, adjusted to mean solar time, is used for comparison of clocks and for occasional observations.

The barometer ordinarily used with the transit circle is by Newman, and has a fiducial point, which is brought into contact with the surface of the mercury; that used formerly with the heliometer is by Jones, and has a bag and float for the adjustment

of the level of the cistern. The latter was, in the year 1862, placed in the transit circle room, near that by Newman. As in the year 1865, on account of a derangement of Newman's and repeated difficulties in refilling the tube satisfactorily, the barometer by Jones has been used for the observations of zenith-distance.

Description, Adjustments, and Mode of Use of the Transit Circle.—This instrument was purchased of Mr. Carrington and conveyed to Oxford in the summer of 1861, and in September of that year I prepared to mount it on its original piers in the west transit room of the Observatory, having previously removed the transit instrument for use to the east transit room. On stripping the flooring, as far as was required, it was found that very little addition was necessary to the foundations which previously existed. The foundation-piers of the transit instrument to the level of the flooring were adapted to the new instrument by simply building up small square brick columns at the corners; and a very solid brick wall, which was found to run north and south in the plane of the meridian, was admirably adapted, without any alteration, to sustain the piers of the north and south collimators. The dimensions of the two piers of the instrument at the level of the flooring are 5 feet by 2 feet 5 inches; and those of the piers of the collimators are 3 feet by 1 foot 10 inches. The extreme height of each pier of the instrument is 7 feet 9 inches, and the space between them is 2 feet 6 inches. The height of the centre of the telescope from the floor is 5 feet 10 inches. The effective breadth of the room in the direction of the meridian is 19 feet 6 inches, and in the other direction (east and west) it is 14 feet. The distance between the north or south wall and the back of the corresponding collimator-pier is 13 inches. Hence, when the telescope is horizontal, the distance between its object-glass and that of either collimator is barely 3 feet. On account of the small dimensions of the room, I at first intended to place the collimators, under proper protection, outside it; but it was found that this arrangement would be attended with so many inconveniences that I preferred to place them inside the room. The only serious inconvenience is the limitation of the zenithal arc within which stars can be observed by reflexion, but it will be seen by the results that this is sufficient to exercise a very severe check on the zenith points as obtained solely by Bohnenberger's eyepiece.

The instrument, as used by Mr. Carrington, had four reading microscope-micrometers, two of which were placed horizontal and two vertical. This arrangement was, however, inconvenient, because the use of the upper microscopes was seriously interfered with by the flame

of the central light used for illumination of the field of the telescope and of the divisions of the limb of the circle under the microscopes. As soon, therefore, as the piers were erected, I caused them to be bored for four other microscopes placed at angles of 45° , or at equal spaces between the original ones; and, with the usual liberality of the Radcliffe Trustees, I was allowed to order from Messrs. Troughton and Simms four additional ones of precisely the same construction as the original. In this place it may be proper to state that I took on myself the whole superintendence of the mounting of the instrument; that I adjusted the microscopes and collimators; and made (in 1862 and 1863) the observations for the determination of the flexure of the telescope and of the value of the screw of the declination micrometer. The actual erection of the piers and other similar work was performed under the direction of Mr. T. Grimsley, and the carpenter's work under that of Mr. H. Radbone.

Amongst other subsidiary matters may be mentioned the provision which was made for observation of stars by reflexion. For this purpose two stages with convenient steps were placed one on the north and the other on the south side of the western pier, supporting a connecting horizontal rail running at a convenient height between the telescope and the graduated circle for protection of the observer. The uprights which support this rail are so contrived as to form a protection for the circle from accidental injury, and also an additional guard from the sun's rays during observation. The mercury trough is carried by a frame of very simple construction (running freely on castors), consisting of a horizontal board and two vertical boards merely kept firm by braces at the open sides, and with brackets or ledges on their inner surfaces for supporting the mercury trough at any required height. This apparatus has been found very convenient in practice, though it is scarcely sufficiently massive to produce perfect steadiness.

Between the piers is a thick slab of stone sunk to the depth of 9 inches for the support of a second mercury trough kept in a fixed position for the observation of the nadir point in the usual way by Bohnenberger's eyepiece: and this, when the nadir observation is completed, is covered by a massive platform of wood of nearly 2 inches in thickness, which is raised or depressed on hinges, and is, when down, level with the flooring, so that the observing-chair can traverse without interruption. (It having been found, however, that the ordinary mercury trough was not sufficiently steady under this arrangement, the pit was filled up with one flat stone in December 1866, a hollow space being left in it for the reception of the small

trough, used for the observation of the reflected image of the horizontal wire.) The space is too limited to admit of a deep pit, as in the case of the transit circle at Greenwich. For the support of the observer, while observing the nadir point, a tall moveable stage is used, which is sufficiently convenient.

For the illumination of the instrument and of the clock-face gas is employed. For the central illumination of the field of the telescope and the microscopes it was originally found convenient to introduce a piece of flexible tubing a little below the support of the gas-holder, but this has since been replaced by a rigid tube. A metal tube with large mouth, immediately above the flame, carries off the heated air into the chimney of the room. A fixed gas-jet on the western pier, and on a level with the reflector of the Bohnenberger's eyepiece when the telescope is vertical, serves for the nadir-point observation. The collimators are also illuminated by gas, of which the heating effect is hindered by thick disks of plate-glass. The clock is placed against the north wall of the room, opposite to the western pier.

As the introduction to Mr. Carrington's *Catalogue of Circumpolar Stars* contains a very full and particular description of the instrument as it was used by him, it will be sufficient to refer to that work for minute details, as well as for a drawing made to scale, and to give merely its dimensions and all such circumstances as are connected with its use at this Observatory. The general design was copied from that of the great transit circle at Greenwich, but the proportion of the separate parts is not exactly retained; gun-metal is used instead of iron, and the use of tangent-screws (for coarse motions) is retained. The achromatic object-glass is of 5 inches aperture and of 66 inches focal length, and I am happy to endorse Mr. Carrington's statement of its excellence. The eyepiece (of power about 140) is moveable by a slide in the direction of the meridian, and this slide is carried by a second at right angles, moveable by a coarse screw. As used by Mr. Carrington, a frame, moveable east and west by a micrometer-screw, carried nine transit wires, at equatorial intervals of about 10 seconds and 5 seconds of time, and this was used unaltered during the year 1862. The intervals, were, however, found to be inconveniently small, and, at the commencement of 1863, one of the wires having become detached, Mr. William Simms replaced them by a webbing of 13 transit wires, of which those at wide distances had for the equatorial interval about 14 seconds, and the central wires intervals of 3 and 6 seconds. For declination there is no fixed wire, but only one moveable by a distinct micrometer. The screws have the same value, and the angular value of a revolution of each is

about 32". The horizontal axis consists of a central cube 9 inches in the side, and of two cones, to which the pivots are mechanically joined by large screws, and (excepting the pivots) it was made in a single casting of gun-metal. In the central tube is a reflector which can be differently inclined at pleasure by a rod acted on at the eye-end of the telescope, and the illumination of the field is provided for by the gas flame outside the western pier. The length of the horizontal axis from the centre of one pivot to that of the other is 50 inches. The bearings on which the pivots rest are of the form of the letter Y, of great solidity, constructed of cast brass, and each capable of similar screw-adjustment in level, while neither admits, when once the bed-plates are screwed down to the pier, of motion in azimuth. The instrument was brought into proper azimuthal position by tapping the eastern bed-plate, the south collimator being used for estimating the amount of the azimuthal deviation obtained by observations of circumpolar stars.

The horizontal axis carries two gun-metal circles (each of which was cast from the same pattern in a single flow, and carefully annealed) of 42 inches diameter. The east circle is used as a clamping and setting circle, being roughly divided into spaces of 5' on its outer or cylindrical rim. The west circle carries on its western face a band of gold, let into its surface, on which divisions of 5' interval were made by Mr. Simm's dividing-engine; the divided rim being bevelled as in the case of the Greenwich Circle, for the purpose of enabling the divisions under the microscopes to be illuminated by one fixed central light. It has been previously mentioned that the number of microscopes originally mounted was four, placed two and two horizontally and vertically, but that four additional, placed between the others at equal intervals, were mounted in June 1862. They are in conical arrangement, the micrometer ends of a diametral pair being 24 inches apart. Each is furnished with two parallel wires in its focus, and, for reading off, the division is placed midway between them. A great portion of the weight of the instrument is taken off the Ys by counterpoises, having the fulera of their levers near the inner edges of the piers, these piers carrying also friction-rollers, applied to grooves in the axis. The residual weight on each bearing has been about 15lbs., the counterpoise weights being placed in the same positions as in the use of the instrument by Mr. Carrington.

The collimating telescopes, mounted on separate piers, as described at page iii, are of 33 inches focal length and $2\frac{3}{4}$ inches aperture, and the system of wires in their foci are precisely similar to those used at Greenwich; that is, each webbing consists of two nearly horizontal

and two nearly vertical wires crossing each other so as to form a square, and with another nearly horizontal wire at a distance of about ten times the side of the square. The north collimator has a micrometer moving the whole system of wires in the vertical direction, and the south collimator a micrometer moving its system of wires in the horizontal direction.

Subjects of Observation.—The stars observed with the transit circle in preceding years, were taken from a compiled list extracted from the British Association Catalogue, including all below the fifth magnitude which are visible at Oxford, and which have not been satisfactorily observed either at Greenwich or Oxford. In the year 1866, this list was supplemented by others taken from Struve's Catalogue of Double Stars, and from various Catalogues in a zone of about 20° in breadth extending from 50° to 70° of N.P.D. The sun and the planet Mercury have been observed, and the moon within the limits of the observing hours, which extend from six o'clock to eleven during the winter months, and from dusk to midnight during the summer months, one observer only being generally employed. The observations with the transit circle were made generally by Mr. Quirling. His initial, which is given in most of the sections, is Q. A few observations have been made by myself and Mr. Lucas, under the initials M and L.

The *Heliumeter*, which will be described in a following Section, was, as in former years, used almost exclusively by myself, and chiefly for the observation of double stars. The stars observed were chiefly Struve's *Lucide*, as in former years, and in addition those contained in Struve's first Appendix, having distances greater than $32''$.

SECTION II.—*Reduction of the Observations of Right Ascension, made with the Transit Circle in the Year 1866.*

The observations, as before stated, were made generally by Mr. Quirling.

The designations of the stars observed follow the same rules as in preceding years. For stars in the Nautical Almanac the names there given are preferred to all others. For stars contained in Baily's Flamsteed, the Greek or Italic letter of Bayer there adopted is used, or, in defect of that, Flamsteed's number, with the name of the constellation. For other stars, the British Association Catalogue is preferred to all other Catalogues, and then, in order of preference, the Catalogues of Struve (for anonymous double stars), Piazzzi, Groombridge, the Radcliffe, Carrington's Red Hill, Weisse's Bessel, Lalande, and Lacaille (as published by the British Association), Oeltzen's

Argelander, and Rümker, are used. In referring to the two volumes of Weisse's Bessel, the contractions W.B. (1) and W.B. (2) are employed; and, similarly for the North and South Zones of Oeltzen's Argelander, the contractions used are O.A. (N.Z.) and O.A. (S.Z.)

Intervals of Wires.—On October 29, 1864, one of the vertical or transit wires was found to be broken and entangled with the horizontal wire, and, on endeavouring to clear it away, another wire (XI) was broken. Observations were made till near the end of December without reinstatement of the missing wires, but, on December 26, the eyepiece was taken off and sent to Mr. Simms to have new wires inserted. On December 31 the eyepiece, with the wires complete, was reinstated.

In 1865 a considerable number of transits over all the thirteen wires were taken for the purpose of determining their intervals, and the results are given in the following Tables, in which it is to be noticed that each set is reduced to the mean of the seven wide wires.

Distance of each of the Seven Wires at wide intervals from the Mean of the Seven.

| Determining Stars. | Wire | | | | | | | Number of Obs. |
|--------------------|---------|---------|---------|--------|---------|---------|---------|----------------|
| | I. | II. | III. | VII. | XI. | XII. | XIII. | |
| | s. | s. | s. | s. | s. | s. | s. | |
| Radcliffe 1272 ... | +43'310 | +28'865 | +14'470 | -0'065 | -14'498 | -28'893 | -43'190 | 3 |
| Radcliffe 3685 ... | '264 | '848 | '415 | '036 | '501 | '831 | '157 | 3 |
| Radcliffe 3749 ... | '136 | '844 | '364 | '073 | '371 | '759 | '144 | 1 |
| Radcliffe 3900 ... | '227 | '786 | '391 | '104 | '453 | '800 | '046 | 1 |
| 24 Ursæ Minoris | '213 | '867 | '431 | '064 | '374 | '836 | '235 | 1 |
| Radcliffe 1979 ... | '177 | '852 | '517 | '105 | '473 | '779 | '189 | 1 |
| δ Ursæ Minoris | '235 | '805 | '544 | '106 | '519 | '869 | '092 | 1 |
| Radcliffe 2404 ... | '292 | '799 | '444 | '054 | '410 | '859 | '210 | 2 |
| Groombr. 1620 ... | '244 | '813 | '488 | '082 | '498 | '801 | '166 | 2 |
| Radcliffe 5760 ... | '226 | '914 | '451 | '014 | '478 | '843 | '254 | 1 |
| 2 Ursæ Minoris | '255 | '884 | '429 | '028 | '485 | '901 | '155 | 1 |
| Groombr. 4193 | '229 | '857 | '443 | '045 | '462 | '876 | '143 | 1 |
| Radcliffe 2612 ... | '277 | '853 | '454 | '045 | '512 | '880 | '145 | 1 |
| Radcliffe 6099 ... | '221 | '864 | '425 | '054 | '419 | '858 | '177 | 1 |
| Means ... | +43'250 | +28'844 | +14'448 | -0'062 | -14'468 | -28'845 | -43'169 | 20 |

Distance of each of the Nine Wires at small intervals from the Mean of the Seven Wires at wide intervals.

| Determining Stars. | Wire | | | | | | | | | Number of Obs. |
|--------------------|--------------------------|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------|--------------------------|----------------|
| | III. | iv. | v. | vi. | VII. | viii. | ix. | x. | XI. | |
| Radcliffe 1272 | ^{s.} +14'470 | ^{s.} +11'583 | ^{s.} +8'595 | ^{s.} +5'810 | ^{s.} -0'065 | ^{s.} -5'748 | ^{s.} -8'656 | ^{s.} -11'520 | ^{s.} -14'498 | 3 |
| Radcliffe 3685 | '415 | '545 | '632 | '807 | '036 | '849 | '688 | '543 | '501 | 3 |
| Radcliffe 3749 | '364 | '559 | '709 | '812 | '073 | '774 | '670 | '475 | '371 | 1 |
| Radcliffe 3900 | '391 | '511 | '680 | '850 | '104 | '717 | '548 | '525 | '453 | 1 |
| 24 Urs. Min.... | '431 | '616 | '644 | '803 | '064 | '772 | '587 | '454 | '374 | 1 |
| Radcliffe 1979 | '517 | '542 | '652 | '818 | '105 | '632 | '607 | '583 | '473 | 1 |
| δ Urs. Min. ... | '544 | '585 | '684 | '843 | '106 | '759 | '600 | '501 | '519 | 1 |
| Radcliffe 2404 | '444 | '600 | '664 | '869 | '054 | '763 | '654 | '473 | '410 | 2 |
| Groomb. 1620 | '488 | '536 | '638 | '856 | '082 | '756 | '648 | '429 | '498 | 2 |
| Radcliffe 5760 | '451 | '558 | '714 | '919 | '014 | '800 | '693 | '585 | '478 | 1 |
| 2 Ursæ Min.... | '429 | '624 | '701 | '817 | '028 | '912 | '718 | '524 | '485 | 1 |
| Groomb. 4193 | '443 | '552 | '627 | '736 | '045 | '897 | '576 | '607 | '462 | 1 |
| Radcliffe 2612 | '454 | '510 | '629 | '748 | '045 | '775 | '624 | '536 | '512 | 1 |
| Radcliffe 6099 | '425 | '560 | '619 | '791 | '054 | '747 | '651 | '592 | '419 | 1 |
| Means | +14'448 | +11'564 | +8'647 | +5'822 | -0'062 | -5'781 | -8'646 | -11'519 | -14'468 | 20 |

The following values of the distances of each wire from the mean of the seven wide wires have been adopted.

| | ^{s.} | | ^{s.} | | ^{s.} |
|-----------|---------------|------------|---------------|------------|---------------|
| I. | +43'250. | vi. | +5'822. | x. | -11'519. |
| II. | +28'844. | VII. | -0'062. | XI. | -14'468. |
| III. | +14'448. | viii. | -5'781. | XII. | -28'845. |
| iv. | +11'564. | ix. | -8'646. | XIII. | -43'169. |
| v. | +8'647. | | | | |

For the reduction of imperfect transits of stars not near the pole, the usual formula has been used.

For stars near the pole,

Reduction to mean of all the wires in time = mean of equatorial intervals of observed wires in time $\times \text{Cosec. N.P.D.} \times \frac{\text{Arc corresponding to reduction}}{\text{Sine of arc corresponding to reduction}}$.

Or, Reduction to mean = mean of equatorial intervals $\times \text{Cosec. N.P.D.} + \text{correction}$;

the value of " $\log \left(\frac{\text{Arc}}{\text{Sine}} \right)$ " and of "correction" being taken from the following Table.

| Approx. Value of Reduction. | Approx. Log. | Log. ($\frac{\text{Arc}}{\text{Sine}}$). | Cor- rection. | Approx. Value of Reduction. | Approx. Log. | Log. ($\frac{\text{Arc}}{\text{Sine}}$). | Cor- rection. |
|--------------------------------------|-----------------|--|------------------|--------------------------------------|-----------------|--|------------------|
| m. s. | | | s. | m. s. | | | s. |
| 0 20 | 1'301 | 0'000000 | +0'00 | 7 20 | 2'643 | 0'000074 | +0'08 |
| 40 | 1'602 | 01 | '00 | 40 | 2'663 | 81 | '09 |
| 1 0 | 1'778 | 01 | '00 | 8 0 | 2'681 | 89 | '10 |
| 20 | 1'903 | 02 | '00 | 20 | 2'699 | 96 | '11 |
| 40 | 2'000 | 04 | '00 | 40 | 2'716 | 104 | '12 |
| 2 0 | 2'079 | 05 | '00 | 9 0 | 2'732 | 112 | '14 |
| 20 | 2'146 | 07 | '00 | 20 | 2'748 | 120 | '16 |
| 40 | 2'204 | 10 | '00 | 40 | 2'763 | 129 | '17 |
| 3 0 | 2'255 | 12 | '00 | 10 0 | 2'778 | 138 | '19 |
| 20 | 2'301 | 15 | '01 | 20 | 2'792 | 147 | '21 |
| 40 | 2'342 | 18 | '01 | 40 | 2'806 | 157 | '23 |
| 4 0 | 2'380 | 22 | '01 | 11 0 | 2'820 | 167 | '25 |
| 20 | 2'415 | 26 | '02 | 20 | 2'833 | 177 | '28 |
| 40 | 2'447 | 30 | '02 | 40 | 2'845 | 188 | '30 |
| 5 0 | 2'477 | 35 | '02 | 12 0 | 2'857 | 199 | '33 |
| 20 | 2'505 | 39 | '03 | 20 | 2'869 | 210 | '36 |
| 40 | 2'531 | 44 | '03 | 40 | 2'881 | 221 | '39 |
| 6 0 | 2'556 | 50 | '04 | 13 0 | 2'892 | 233 | '42 |
| 20 | 2'580 | 56 | '05 | 20 | 2'903 | 245 | '45 |
| 40 | 2'602 | 61 | '06 | 40 | 2'913 | 257 | '49 |
| 7 0 | 2'623 | 68 | '07 | 14 0 | 2'924 | 0'000270 | +0'52 |
| 20 | 2'643 | 0'000074 | +0'08 | | | | |

For the observations of the sun and planets, allowance has always been made for the motion in R.A. in the reduction of imperfect transits. For the reduction of imperfect transits of the moon the usual formula has been employed; namely—

$$\text{Correction to mean of wires} = \text{Equat}^l. \text{ Interval} \times \frac{3600 + 1}{3600} \times \frac{\sin \text{Geoc. Z.D.}}{\sin \text{App. Z.D.}} \times \text{Sec. Decl}^n.$$

Transit Telescope-Micrometer.—It has been stated that the screw of this micrometer gives motion, east and west, to the whole system of the transit wires. In its actual use it is employed for placing the central wire upon the north and south collimator marks, and for measuring the angular space between the position of the line of collimation and the position of the central wire as set for observation, or the *Error of Collimation*.

The value of one revolution of the screw which has been used in 1866 is $32''\cdot 03$, as in the preceding year.

The *Error of Collimation* was determined by the use of the collimators on every observing evening, the collimators being, at each observation, set accurately on each other by means of the micrometer-screw of the south collimator, and the readings of their micrometers being recorded. The reading of the telescope-micrometer for coincidence with the north and south collimators successively was then taken six times, and the mean of all was taken as the reading for the line of collimation. The difference between this reading and the actual reading of the micrometer as set for observation, when reduced to arc and corrected for the diurnal aberration, is the error of collimation of the central wire.

The *Error of Level* (determined generally at the same time as the error of collimation) was found by taking the readings of the transit telescope-micrometer for coincidence of the direct and reflected images of the central wire as viewed with a Bohnenberger's eyepiece, and comparing the mean of the readings (six in number) with the mean of the readings for the line of collimation.

Error of Azimuth.—This error is determined by consecutive transits of Polaris or δ Ursæ Minoris, whenever such have been observed; but generally, in defect of this, by transits of two circumpolar stars differing in R.A. by nearly twelve hours, of which a list has been carefully compiled from the *Radcliffe Catalogue*. In a few instances when two circumpolar stars have not been observed, the azimuthal error is determined by means of one circumpolar and one known south star.

The following is the star-list which was prepared for the determination of the azimuthal error in 1866, the R.A.'s of Mr. Johnson's special Catalogue in Vol. XVI. of the *Radcliffe Observations* being accurately brought up to the year 1866, by the use of the precessions and proper motions given in that work.

Tabular Right Ascensions of unknown Stars near the Pole for 1866.

| Name; or Number in Rad. Cat. | Number in Groom- bridge. | Mean R.A. 1866, Jan. 1. | Approx- imate N.P.D. | Name; or Number in Rad. Cat. | Number in Groom- bridge. | Mean R.A. 1866, Jan. 1. | Approx- imate N.P.D. |
|---------------------------------------|-----------------------------------|----------------------------|----------------------------|---------------------------------------|-----------------------------------|----------------------------|----------------------------|
| | | h. m. s. | ° ' " | | | h. m. s. | ° ' " |
| 102 | 67 | 0 23 20.77 | 4 25.3 | 2836 | 1871 | 12 12 56.77 | 2 49.1 |
| 229 | 144 | 0 47 42.91 | 1 41.8 | 2905 | 1923 | 12 37 23.44 | 5 37.2 |
| 2 Urs. Min. | 177 | 0 50 58.16 | 4 27.8 | 2930 | 1940 | 12 48 10.69 | 5 51.5 |
| 559 | ..... | 1 56 12.47 | 1 27.6 | 3000 | 2006 | 13 10 4.36 | 1 37.9 |
| 713 | ..... | 2 22 59.94 | 3 32.4 | 3016 | 2007 | 13 20 10.50 | 4 32.7 |
| 745 | ..... | 2 33 25.46 | 2 0.0 | 3087 | 2065 | 13 34 3.56 | 1 45.7 |
| 870 | 595 | 3 1 7.52 | 5 34.3 | 3075 | ..... | 13 34 53.24 | 4 2.6 |
| 953 | 642 | 3 22 51.29 | 3 46.9 | 3157 | 2099 | 14 3 40.31 | 3 36.0 |
| 1115 | 750 | 3 55 27.97 | 4 48.2 | 3324 | 2210 | 14 56 14.83 | 3 29.9 |
| 1272 | ..... | 4 34 1.66 | 3 54.3 | 3340 | 2213 | 15 5 30.29 | 5 31.9 |
| 1311 | ..... | 4 44 41.22 | 4 13.6 | 3362 | ..... | 15 12 31.01 | 3 58.8 |
| 1377 | ..... | 4 58 39.41 | 4 27.5 | 3414 | 2283 | 15 21 42.85 | 2 15.4 |
| 1459 | 944 | 5 19 22.19 | 4 52.9 | 3475 | ..... | 15 48 19.12 | 4 44.3 |
| 1571 | 1004 | 5 52 54.10 | 3 14.3 | 3523 | ..... | 16 4 17.97 | 4 19.1 |
| 1864 | 1119 | 7 17 49.40 | 0 59.2 | 3522 | ..... | 16 5 31.53 | 5 59.9 |
| 1979 | ..... | 7 33 16.28 | 3 15.0 | 3685 | ..... | 17 5 13.69 | 5 7.2 |
| 2020 | ..... | 7 40 58.16 | 3 55.5 | 3749 | ..... | 17 34 57.96 | 5 16.7 |
| 2125 | 1418 | 8 15 52.51 | 4 28.9 | 3798 | ..... | 17 45 4.89 | 3 1.8 |
| 2129 | ..... | 8 17 52.55 | 4 20.4 | 3900 | ..... | 18 13 17.26 | 5 36.2 |
| 2162 | ..... | 8 27 40.24 | 5 37.3 | 24 Urs. Min. | 2667 | 18 20 23.33 | 3 1.0 |
| 2189 | ..... | 8 37 2.85 | 3 55.4 | 4208 | ..... | 18 58 15.62 | 3 27.8 |
| 2210 | ..... | 8 45 16.43 | 4 59.5 | 4476 | ..... | 19 41 36.36 | 4 11.7 |
| 2218 | ..... | 8 46 50.61 | 5 17.3 | 4881 | ..... | 20 27 40.56 | 5 19.9 |
| 2273 | ..... | 9 5 14.28 | 2 33.5 | 4894 | ..... | 20 29 25.64 | 5 18.1 |
| 2404 | ..... | 9 46 39.84 | 5 26.4 | 4980 | ..... | 20 37 32.43 | 2 28.7 |
| 2407 | ..... | 9 52 1.36 | 2 3.7 | 5090 | ..... | 20 54 56.79 | 4 50.2 |
| 2462 | 1620 | 10 9 40.80 | 5 4.2 | 5301 | 3548 | 21 25 48.01 | 3 31.4 |
| 2507 | ..... | 10 25 45.16 | 4 33.6 | 5723 | 3820 | 22 23 31.15 | 4 34.1 |
| 2560 | ..... | 10 42 11.98 | 4 55.8 | 5760 | ..... | 22 28 46.97 | 5 37.4 |
| 2594 | ..... | 10 55 58.97 | 1 38.0 | 5776 | ..... | 22 29 17.64 | 2 36.0 |
| 2612 | ..... | 10 57 47.75 | 3 38.1 | 6099 | ..... | 23 24 14.41 | 4 19.2 |
| 2684 | ..... | 11 21 8.03 | 4 33.4 | 6117 | ..... | 23 27 18.10 | 4 10.9 |
| 2705 | ..... | 11 24 54.47 | 3 39.0 | 6119 | 4101 | 23 27 50.11 | 3 25.9 |
| 2738 | ..... | 11 37 21.65 | 3 43.4 | 6172 | ..... | 23 38 27.61 | 5 16.4 |
| 2792 | 1850 | 11 57 58.25 | 3 40.2 | 6253 | 4193 | 23 53 16.96 | 4 2.3 |

The assumed Mean Right Ascensions of Polaris, Cephei 51 (Hev.), δ Ursæ Minoris, and λ Ursæ Minoris, for 1866, Jan. 1, are as follows :

| | h. | m. | s. |
|-----------------------------|----|----|--------|
| Polaris | 1 | 9 | 58.61. |
| Cephei 51 (Hev.)... | 6 | 36 | 42.34. |
| δ Ursæ Minoris..... | 18 | 15 | 34.11. |
| λ Ursæ Minoris..... | 19 | 58 | 11.84. |

In the computation of the corrections to apparent R.A. of the circumpolar stars given above, the terms depending upon z have been taken into account.

The method of deducing the amount of azimuthal error needs scarcely any explanation. Two tables of factors for the errors of collimation, level, and azimuth have been formed (that is, tabulated values of $\frac{1}{15 \sin N.P.D.}$, $\frac{\cos Z.D.}{15 \sin N.P.D.}$, and $\frac{\sin Z.D.}{15 \sin N.P.D.}$), the one for the list of stars above given, and for all stars used in deducing clock error, and the other for small intervals of N.P.D., and thus in any particular case the factor for azimuth can be taken out at sight. In the case, then, of two consecutive observations of Polaris, above and below pole, the times of the observed transits, after having been corrected for the errors of collimation and level, and the second transit having also been corrected for clock-rate and change of R.A. in 12 hours, are affected with the factors for azimuth multiplied into the unknown azimuthal error z . The difference of these times ought to be equal to 12 hours if the instrument has remained steady during the interval of the observations, and thus the value of z is determined. If three consecutive transits be observed, the process is essentially the same, excepting that the mean of the successive differences of the seconds of transits will give the effect of the error of azimuth, without the need of correction for clock-rate and change of right ascension. Finally, in the case of two circumpolar stars, or of one circumpolar and one south star, each transit affected with z multiplied into its proper factor and compared with the right ascension of the star, will give a clock-error; and the two clock errors thus deduced, when corrected for clock-rate in the interval, should be equal; and hence z is found.

The following table gives the values of the errors of collimation, level, and azimuth which have been used throughout the year 1866, with the days of observation annexed.

Instrumental Errors used in the Reduction of the Transit Observations,
1866.

| Day of Obs. | Observer. | Error of Collimation | Error of Level. | Error of Azimuth. | Determining Stars for Error of Azimuth. |
|-------------------|-----------|----------------------------|-----------------------|-------------------------|--|
| 1866. | | " | " | " | |
| Jan. 1 | Q | -0'32 | +1'78 | +9'29 | γ Ceti & Groombridge 1119. |
| 2 | " | " | " | " | No determining stars. |
| 3 | " | " | " | " | " " |
| 5 | " | +0'42 | +2'76 | [+9'57] | " " |
| 6 | " | -0'32 | " | +9'57 | Groomb. 2283 S.P. & Groomb. 750. |
| 8 | " | +0'12 | +2'45 | +10'81 | Radcliffe 3475 S.P. & Groombridge 750. |
| 8-9 | " | " | " | +9'11 | δ Ursæ Minoris & δ Ursæ Minoris S.P. |
| 11 | " | -0'33 | +1'96 | +10'57 | Groomb. 595 & Groomb. 2213 S.P. |
| 12 | " | " | " | +10'30 | Radcliffe 1311 & δ Ursæ Minoris S.P. |
| 14-15 | " | -0'99 | +1'76 | +3'60 | γ Eridani & Radcliffe 1272. |
| 16 | " | " | " | +5'93 | δ Ursæ Minoris S.P. & γ Geminorum. |
| 18-19 | " | -0'54 | +2'44 | [+7'23] | No determining stars. |
| 20 | " | " | " | +7'23 | Groomb. 2213 S.P. & Groomb. 750. |
| 22 | " | -0'77 | +2'75 | +6'48 | β Tauri & 24 Ursæ Minoris S.P. |
| 23 | " | " | " | +7'09 | Groomb. 2210 S.P. & Groomb. 595. |
| 24 | " | " | " | " | No determining stars. |
| 25 | " | " | " | +8'34 | Groombridge 2213 S.P. & Radcliffe 1311. |
| 28-29 | " | -0'80 | +2'85 | +9'45 | Groombridge 595 & Radcliffe 3362 S.P. |
| 31 | " | " | " | +2'39 | Radcliffe 3749 S.P. & Groombridge 1004. |
| Feb. 2 | " | -1'25 | +2'40 | +3'51 | Radcliffe 3475 S.P. & Groombridge 750. |
| 3 | " | " | " | " | No determining stars. |
| 5 | " | -1'53 | +2'32 | [+4'15] | " " |
| 7 | " | " | " | +4'15 | Groombridge 750 & Radcliffe 3523 S.P. |
| 8 | " | " | " | " | No determining stars. |
| 9-10 | " | " | " | +5'63 | Radcliffe 1272 & Radcliffe 3685 S.P. |
| 12 | " | -0'77 | +3'24 | +5'84 | Groombridge 944 & Radcliffe 3749 S.P. |
| 12-13 | " | " | " | +5'52 | Radcliffe 1377 & Radcliffe 3749 S.P. |
| 14 | " | " | " | " | No determining stars. |
| 17 | " | -1'34 | +2'66 | +5'17 | Groombridge 944 & Radcliffe 3749 S.P. |
| 19 | " | -0'83 | +3'20 | +6'63 | Radcliffe 1377 & Radcliffe 3749 S.P. |
| 20 | " | " | " | " | No determining stars. |
| 21 | " | -0'33 | +3'87 | +8'74 | Radcliffe 1311 & Radcliffe 3685 S.P. |
| 23 | " | " | " | +7'03 | Groombridge 1418 & Radcliffe 4894 S.P. |

Jan. 1. The reading of the transit-micrometer for the observation was 221'650. This continued till March 3.

| Day of Obs. | Observer. | Error of Collimation | Error of Level. | Error of Azimuth. | Determining Stars for Error of Azimuth. |
|-------------|-----------|----------------------|-----------------|-------------------|--|
| 1866. | | " | " | " | |
| Feb. 24 | Q | -0.33 | +3.87 | +7.03 | No determining stars. |
| 25 | M | " | " | [+9.02] | " " |
| 26 | Q | -0.25 | +3.93 | " | " " |
| 27 | " | " | " | +12.38 | Groombridge 944 & Radcliffe 3798 S.P. |
| 28 | " | -0.44 | " | +10.05 | Radcliffe 3749 S.P. & Groombridge 1004. |
| Mar. 1 | " | " | " | " | No determining stars. |
| 2 | " | -1.05 | +2.91 | +7.10 | Groomb. 1004 & 24 Ursæ Minoris S.P. |
| 3 | " | " | " | " | No determining stars. |
| 5 | " | +1.77 | +4.34 | +11.62 | 24 Ursæ Minoris S.P. & Cephei 51 (Hev.) |
| 6 | " | " | " | +10.30 | Cephei 51 (Hev.) & θ Canis Majoris. |
| 8 | " | +1.32 | +3.78 | " | No determining stars. |
| 12 | " | +1.78 | +4.62 | +12.11 | Radcliffe 4208 S.P. & Groombridge 1119. |
| 13 | " | " | " | +12.41 | Groombridge 1418 & Radcliffe 4894 S.P. |
| 14 | " | " | " | +11.67 | " " |
| 16 | " | +0.90 | +3.68 | +7.14 | Groomb. 1620 & Groomb. 3820 S.P. |
| 17 | " | " | " | " | No determining stars. |
| 27 | " | +1.28 | +4.03 | +10.00 | Radcliffe 2218 & Groombridge 3548 S.P. |
| Apr. 5 | " | +1.80 | +4.86 | " | No determining stars. |
| 6 | " | +1.12 | +4.29 | " | " " |
| 13 | " | +0.76 | +3.98 | +3.40 | Groomb. 1620 & Groomb. 3820 S.P. |
| 13-14 | " | " | " | +5.81 | Polaris & Radcliffe 6099 S.P. |
| 17-18 | " | +0.58 | +4.14 | +5.58 | Polaris S.P. Polaris, & Polaris S.P. |
| 20 | " | +0.29 | +3.97 | [+4.28] | No determining stars. |
| 21 | " | " | " | +4.28 | ρ Leonis & Polaris S.P. |
| 22-25 | " | +0.85 | +5.00 | +5.84 | Seven consecutive transits of Polaris. |
| May 2 | " | +0.83 | +5.07 | +7.65 | β Leonis & Polaris S.P. |
| 3-4 | " | " | " | +8.52 | Four consecutive transits of Polaris.. |
| 7 | " | +0.74 | +4.50 | +8.71 | Polaris S.P. & ρ Boötis. |
| 8-9 | " | " | " | " | No determining stars. |
| 12 | " | " | " | +6.14 | Polaris S.P. & Groombridge 2213. |
| 15 | " | +1.45 | +5.28 | +10.11 | Polaris S.P. & Groombridge 2210. |
| 16 | " | " | " | +9.28 | Polaris S.P. and η Boötis. |
| 17 | " | +0.58 | +4.18 | +6.00 | Polaris S.P. & Groombridge 2099. |
| 18 | " | " | " | +5.85 | ϵ Virginis & Polaris S.P. |
| 19 | " | +1.44 | +4.99 | +8.24 | Radcliffe 713 S.P. & Groombridge 2210. |
| 21 | " | +1.85 | +5.86 | +10.22 | Radcliffe 3075 & Radcliffe 713 S.P. |

March 5. The reading of the transit-micrometer for the observations was 22^h.700.
This continued till June 25.

| Day of Obs. | Observer. | Error of Collimation | Error of Level. | Error of Azimuth. | Determining Stars for Error of Azimuth. |
|---|-----------|----------------------|-----------------|-------------------|--|
| 1866. | | " | " | " | |
| May 22 | Q | + 1'85 | + 5'86 | + 10'22 | No determining stars. |
| 23 | " | " | " | + 8'38 | Radcliffe 713 S.P. & Groombridge 2213. |
| 24 | " | + 2'56 | + 7'07 | + 12'23 | Groomb. 2210 & Groomb. 750 S.P. |
| 25 | " | " | " | " | No determining stars. |
| 28 | " | + 1'94 | + 6'19 | + 9'00 | Groombridge 595 S.P. & Radcliffe 3362. |
| 29 | " | " | " | + 11'30 | Groombridge 2099 & Radcliffe 713 S.P. |
| 30 | " | " | " | " | No determining stars. |
| June 2 | " | + 1'64 | + 5'54 | + 8'42 | Radcliffe 3522 & Radcliffe 1272 S.P. |
| 6 | " | + 1'03 | + 5'25 | [+ 6'66] | No determining stars. |
| 7 | " | + 2'17 | + 5'89 | + 6'66 | Radcliffe 3522 & Radcliffe 1272 S.P. |
| 8 | " | " | " | + 7'80 | Radcliffe 3475 & Radcliffe 1272 S.P. |
| 9 | " | " | " | " | No determining stars. |
| 16 | " | - 1'51 | + 5'42 | [+ 4'85] | " " |
| 19 | " | " | " | + 4'85 | Radcliffe 3475 & Radcliffe 1311 S.P. |
| 21-22 | " | " | " | + 5'71 | Radcliffe 3475 & Groombridge 750 S.P. |
| 22-23 | " | " | " | + 5'02 | " " |
| 25 | " | + 0'59 | + 5'92 | + 5'92 | Radcliffe 3749 & Groombridge 1004 S.P. |
| 25-26 | " | " | " | + 5'39 | Groomb. 2213 & Groomb. 750 S.P. |
| 26-27 | " | + 1'19 | + 7'12 | + 7'58 | Radcliffe 3685 & Groombridge 944 S.P. |
| 28 | " | " | " | + 7'78 | Groombridge 750 S.P. & Radcliffe 3523. |
| 29 | " | " | " | + 6'63 | Radcliffe 3749 & Groombridge 1004 S.P. |
| 30 | " | - 4'32 | " | " | No determining stars. |
| July 2 | " | - 2'30 | + 8'32 | " | " " |
| 4 | " | - 3'36 | + 6'37 | + 9'01 | Radcliffe 3523 & Radcliffe 1272 S.P. |
| 5 | " | " | " | " | No determining stars. |
| 6 | " | - 3'87 | " | " | " " |
| 7 | " | - 3'36 | " | [+ 7'00] | " " |
| 9 | " | - 0'30 | + 5'62 | + 4'47 | Radcliffe 1311 S.P. & α Herculis. |
| 10 | " | " | " | + 3'81 | Radcliffe 1311 S.P. & Radcliffe 3685. |
| 11 | " | + 3'94 | + 6'35 | + 3'56 | Radcliffe 3685 & Groombridge 944 S.P. |
| 11-12 | " | " | " | + 4'79 | Radcliffe 1272 S.P. & Radcliffe 3685. |
| 12-13 | " | + 2'63 | + 5'98 | " | No determining stars. |
| 14 | " | " | " | + 3'82 | Radcliffe 1377 S.P. & Radcliffe 3749. |
| 16 | " | + 2'60 | + 6'18 | [+ 3'00] | No determining stars. |
| <p>June 25. The reading of the transit-micrometer for the observations was 22'750. This continued till July 7.</p> <p>June 29. 21^h. The object-glass was taken out and cleaned.</p> <p>July 9. The reading of the transit-micrometer for the observations was 22'850. This continued till July 23.</p> | | | | | |

| Day of Obs. | Observer. | Error of Collimation | Error of Level. | Error of Azimuth. | Determining Stars for Error of Azimuth. |
|---------------------|-----------|----------------------|-----------------|-------------------|---|
| 1866. | | " | " | " | |
| { July 17-18 | Q | + 2.60 | + 6.18 | + 2.16 | Radcliffe 1377 S.P. & Radcliffe 3798. |
| 19 | " | + 3.97 | + 7.25 | + 5.96 | Radcliffe 1377 S.P. & Radcliffe 3685. |
| 20 | M | " | " | + 5.58 | δ Ursæ Minoris & Groombridge 1119 S.P. |
| 21 | Q | " | " | + 6.57 | Groombridge 944 S.P. & Radcliffe 3749. |
| 23 | " | + 3.88 | + 6.94 | " | No determining stars. |
| 30 | " | + 1.64 | + 6.37 | + 6.15 | Groombridge 944 S.P. & Radcliffe 3749. |
| { July 31 to Aug. 4 | " | + 2.09 | + 6.32 | " | No determining stars. |
| 7-9 | " | + 2.35 | + 6.50 | [+ 8.28] | " " |
| 10 | " | " | " | + 8.28 | λ Ursæ Minoris & Radcliffe 2129 S.P. |
| 11 | " | " | " | " | No determining stars. |
| 14-15 | " | + 2.55 | + 6.96 | [+ 10.00] | " " |
| 16 | " | " | " | + 12.44 | Radcliffe 1979 S.P. & Radcliffe 4476. |
| 17 | " | + 1.88 | + 6.69 | [+ 10.90] | No determining stars. |
| 18 | " | " | " | + 9.39 | Radcliffe 4208 & Radcliffe 1979 S.P. |
| 21 | " | + 2.17 | + 6.97 | [+ 8.00] | No determining stars. |
| 22 | " | " | " | [+ 6.76] | " " |
| 23 | " | " | " | + 6.76 | Cephei 51 (Hev.) S.P. & λ Ursæ Minoris. |
| 24 | " | + 1.53 | + 6.37 | + 6.35 | δ Ursæ Minoris & Cephei 51 (Hev.) S.P. |
| 25 | M | " | " | + 7.34 | λ Ursæ Minoris & ε Delphini. |
| Sept. 17 | Q | + 2.76 | + 5.90 | + 8.60 | Groombridge 3548 & Radcliffe 2404 S.P. |
| 19 | " | + 3.74 | " | + 9.91 | Radcliffe 2210 S.P. & Radcliffe 5090. |
| 21 | " | " | " | + 7.14 | ρ Capricorni & Groombridge 3548. |
| 24 | " | — 0.22 | + 5.66 | + 9.42 | Radcliffe 2273 S.P. & Groombridge 3548. |
| 25-26 | " | " | " | " | No determining stars. |
| Oct. 3-6 | " | — 1.34 | + 5.47 | [+ 9.15] | " " |
| 8 | " | — 1.18 | + 5.91 | + 8.92 | Groombridge 1418 S.P. & Radcliffe 4881. |
| 9 | " | " | " | " | No determining stars. |
| 13 | " | " | " | [+ 9.54] | " " |
| 14-15 | " | — 0.59 | + 5.95 | + 9.54 | Polaris S.P. & Radcliffe 5090. |
| 15-16 | " | " | " | + 8.90 | Polaris S.P., Rad. 4894, & Rad. 2218 S.P. |
| 16-17 | " | " | " | + 8.35 | Polaris S.P. & λ Ursæ Minoris. |
| 19 | " | " | " | + 7.49 | ι Pegasi & Groombridge 3820. |

From August 28 to September 15. The transit-circle room was in the hands of the painters, and no observations excepting for approximate clock-error were made.

July 30. The reading of the transit-micrometer for the observations was 22^r.800. This continued till Sept. 21.

Sept. 24. The reading of the transit-micrometer for the observations was 22^r.700. This continued till Dec. 8.

| Day of Obs. | Observation | Error of Collimation | Error of Level. | Error of Azimuth. | Determining Stars for Error of Azimuth. |
|---|-------------|----------------------|-----------------|-------------------|--|
| 1866. | | " | " | " | |
| Oct. 22 | Q | -0.82 | +4.35 | +1.95 | Groombridge 3548 & Radcliffe 2404 S.P. |
| 23-24 | " | " | " | " | No determining stars. |
| 26 | " | 0.00 | +5.18 | [+5.90] | " " |
| 30 | " | -0.41 | +4.54 | +5.90 | Groomb. 1620 S.P. & Groomb. 3820. |
| 30-31 | " | +0.44 | +5.46 | +9.96 | Polaris S.P. & Polaris. |
| Nov. 3 | " | " | " | +7.91 | β Ceti & Polaris. |
| 5-6 | " | +0.45 | +5.38 | +10.06 | Polaris S.P. & Groombridge 3820. |
| 9 | " | +0.10 | +5.18 | +7.40 | Polaris & Radcliffe 3075 S.P. |
| 10 | " | " | " | " | No determining stars. |
| 12 | " | 0.00 | +4.93 | [+8.13] | " " |
| 13 | " | " | " | +8.13 | Radcliffe 2218 S.P. & Radcliffe 5090. |
| 14 | " | " | " | " | No determining stars. |
| 16-17 | " | +0.62 | +5.92 | [+9.20] | " " |
| 18-19 | " | -0.24 | +4.63 | +10.25 | Radcliffe 2684 S.P. & Radcliffe 6172. |
| 20 | " | " | " | +12.67 | Groomb. 67 & Groomb. 1923 S.P. |
| 21 | " | +0.55 | +5.41 | +14.55 | " " |
| 23 | " | -0.12 | +4.29 | [+12.60] | No determining stars. |
| 25-26 | " | -0.14 | +4.50 | " | " " |
| 27 | " | " | " | +10.61 | Radcliffe 3075 S.P. & Groombridge 595. |
| 29-30 | " | " | " | +12.79 | Groomb. 4193 & Groomb. 1871 S.P. |
| Dec. 7 | " | -0.94 | +3.83 | +6.48 | Polaris & Radcliffe 3075 S.P. |
| 7-8 | " | " | " | +6.92 | δ Ursæ Minoris, Polaris, & Rad. 3075 S.P. |
| 10 | " | +1.22 | +4.80 | +8.58 | Polaris & Radcliffe 3075 S.P. |
| 12 | " | " | " | [+9.22] | No determining stars. |
| 13 | " | +0.68 | +4.07 | +9.22 | Groomb. 595 & Groomb. 2283 S.P. |
| 14 | " | +0.16 | " | +11.67 | Groombridge 1923 S.P. & 2 Ursæ Min. |
| 15 | " | " | " | " | No determining stars. |
| 18-19 | " | +1.03 | +4.22 | +7.43 | Polaris & Radcliffe 3075 S.P. |
| 20 | " | " | " | " | No determining stars. |
| 21 | " | +1.51 | " | " | " " |
| 28 | " | +1.03 | +3.35 | +6.37 | γ Eridani & Radcliffe 1311. |
| 29 | " | " | " | " | No determining stars. |
| 31 | " | +1.60 | +3.87 | +9.95 | δ Arietis & Radcliffe 3475 S.P. |
| Dec. 10. The reading of the transit-micrometer for the observations was 22 ^h 75.0. This continued till the end of the year. | | | | | |

It will be seen from the table above that the steadiness of the transit circle both in level and azimuth has been tolerably satisfactory,

though there are occasionally sudden alterations in azimuth of which we can afford no explanation.

Clock-Error.—The assumed mean right ascensions of the stars used for determining clock-error were, as in former years, derived from a list obligingly furnished to me by the Astronomer Royal, which is fundamentally based on the *Greenwich Seven-Year Catalogue of 2022 Stars for the Epoch 1860*. The equinox to which all objects are referred is therefore identical with the Greenwich equinox for the year; and for convenient reference in a matter fundamentally affecting the right ascensions, it seems desirable to reprint the list in this place.

Mean Right Ascensions of Stars for the Determination of Clock-Error,
1866, Jan. 1.

| Name of Star. | Assumed Mean R.A. 1866, Jan. 1. | Corr. to Nautical Almanac. | Name of Star. | Assumed Mean R.A. 1866, Jan. 1. | Corr. to Nautical Almanac. |
|--------------------------|---------------------------------------|----------------------------------|--------------------------|---------------------------------------|----------------------------------|
| | h. m. s. | s. | | h. m. s. | s. |
| α Andromedæ ... | 0 1 27.96 | + 0.07 | ι Tauri..... | 3 32 46.37 | ..... |
| γ Pegasi..... | 0 6 20.28 | + 0.05 | δ Eridani | 3 36 49.81 | ..... |
| ι Ceti | 0 12 35.93 | ..... | η Tauri | 3 39 31.39 | + 0.05 |
| ι Ceti | 0 23 11.99 | — 0.04 | γ Eridani | 3 51 46.66 | + 0.04 |
| ϵ Andromedæ ... | 0 31 28.80 | ..... | ω^1 Tauri | 4 1 21.78 | ..... |
| β Ceti | 0 36 51.67 | + 0.07 | ϕ^1 Eridani | 4 5 19.49 | — 0.03 |
| μ Andromedæ ... | 0 49 19.42 | ..... | γ Tauri | 4 12 10.23 | ..... |
| ϵ Piscium | 0 55 59.45 | — 0.02 | ϵ Tauri | 4 20 47.66 | + 0.01 |
| β Andromedæ ... | 1 2 14.23 | ..... | Aldebaran | 4 28 14.03 | — 0.01 |
| θ Ceti | 1 17 19.51 | + 0.03 | μ Eridani | 4 38 48.26 | ..... |
| η Piscium | 1 24 18.97 | + 0.06 | ι Aurigæ | 4 48 16.23 | 0.00 |
| ν Piscium | 1 34 27.55 | 0.00 | ϵ Leporis | 4 59 47.32 | + 0.05 |
| β Arietis | 1 47 14.49 | + 0.01 | β Orionis | 5 8 5.90 | + 0.01 |
| α Arietis | 1 59 37.47 | + 0.02 | β Tauri..... | 5 17 49.40 | + 0.06 |
| δ Ceti | 2 10 18.02 | + 0.04 | δ Orionis | 5 25 9.68 | — 0.04 |
| ξ^2 Ceti | 2 21 2.20 | — 0.01 | α Leporis | 5 26 49.23 | — 0.04 |
| δ Ceti | 2 32 36.99 | ..... | ϵ Orionis | 5 29 24.84 | — 0.01 |
| γ Ceti | 2 36 21.55 | + 0.04 | α Columbæ | 5 34 47.86 | — 0.15 |
| σ Arietis | 2 44 5.85 | ..... | κ Orionis | 5 41 24.06 | ..... |
| α Ceti..... | 2 55 16.59 | + 0.06 | α Orionis | 5 47 55.07 | + 0.03 |
| δ Arietis | 3 3 58.24 | + 0.01 | ι Geminorum ... | 5 55 58.53 | ..... |
| τ^1 Arietis | 3 13 29.68 | ..... | ν Orionis | 5 59 55.27 | — 0.01 |
| ϕ Tauri | 3 17 36.30 | ..... | η Geminorum ... | 6 6 47.37 | ..... |
| ζ Tauri | 3 23 28.71 | ..... | μ Geminorum ... | 6 14 51.22 | + 0.01 |
| ϵ Eridani | 3 26 37.10 | ..... | β Canis Majoris... | 6 16 48.02 | ..... |

| Name of Star. | Assumed Mean R. A. 1866, Jan. 1. | Corr. to Nautical Almanac. | Name of Star. | Assumed Mean R. A. 1866, Jan. 1. | Corr. to Nautical Almanac. |
|------------------------------|--|----------------------------------|----------------------------|--|----------------------------------|
| | h. m. s. | s. | | h. m. s. | s. |
| γ Geminorum ... | 6 29 58.21 | -0.03 | δ Crateris | 11 12 38.57 | +0.05 |
| θ Canis Majoris... | 6 47 57.85 | ..... | τ Leonis..... | 11 21 2.71 | ..... |
| ϵ Canis Majoris ... | 6 53 21.59 | -0.01 | ν Leonis..... | 11 30 5.25 | -0.03 |
| γ Canis Majoris.. | 6 57 41.77 | -0.03 | β Leonis | 11 42 13.37 | +0.05 |
| δ Geminorum ... | 7 5 40.49 | ..... | π Virginis | 11 54 0.35 | ..... |
| δ Geminorum..... | 7 12 7.11 | 0.00 | ϵ Corvi | 12 3 14.23 | +0.03 |
| β Canis Minoris... | 7 19 52.95 | ..... | η Virginis | 12 13 3.03 | +0.04 |
| Castor | 7 26 2.79 | +0.01 | δ Corvi | 12 22 56.12 | ..... |
| Procyon..... | 7 32 17.20 | +0.09 | β Corvi | 12 27 21.12 | +0.14 |
| Pollux .. | 7 37 6.77 | +0.03 | γ Virginis..... | 12 41 2.03 | ..... |
| ξ Argûs | 7 43 39.52 | ..... | δ Virginis | 12 48 51.29 | ..... |
| δ Cancri..... | 7 55 17.03 | -0.09 | ϵ Virginis | 12 55 30.37 | ..... |
| γ Argûs | 8 1 50.26 | 0.00 | θ Virginis | 13 3 0.82 | +0.03 |
| β Cancri | 8 9 14.81 | ..... | Spica | 13 18 8.16 | +0.02 |
| α^1 Cancri | 8 15 41.28 | ..... | ζ Virginis | 13 27 52.01 | -0.01 |
| η Cancri..... | 8 24 57.36 | +0.03 | m Virginis | 13 34 34.85 | ..... |
| γ Cancri..... | 8 35 31.65 | ..... | τ Boötis | 13 40 53.67 | ..... |
| ϵ Hydræ | 8 39 40.67 | -0.03 | η Boötis..... | 13 48 18.28 | +0.04 |
| α Cancri..... | 8 51 9.35 | ..... | τ Virginis | 13 54 49.71 | +0.05 |
| κ Cancri..... | 9 0 29.23 | ..... | κ Virginis | 14 5 45.06 | ..... |
| δ Cancri | 9 11 29.91 | +0.10 | Arcturus | 14 9 33.02 | +0.06 |
| α Hydræ | 9 21 0.12 | +0.02 | f Boötis | 14 20 13.44 | ..... |
| ξ Leonis..... | 9 24 43.18 | ..... | ρ Boötis | 14 26 3.30 | 0.00 |
| σ Leonis..... | 9 33 59.78 | ..... | ϵ Boötis | 14 39 8.10 | +0.07 |
| ϵ Leonis..... | 9 38 14.44 | +0.04 | α Libræ | 14 43 28.15 | +0.04 |
| μ Leonis | 9 45 8.25 | ..... | ξ^2 Libræ | 14 49 30.02 | ..... |
| π Leonis | 9 53 7.81 | 0.00 | ψ Boötis | 14 58 42.27 | -0.03 |
| Regulus | 10 1 13.99 | +0.02 | β Libræ | 15 9 47.92 | +0.04 |
| γ Leonis | 10 12 34.86 | 0.00 | σ^2 Libræ..... | 15 15 33.54 | ..... |
| ρ Leonis..... | 10 25 45.22 | 0.00 | ζ^1 Libræ | 15 20 42.21 | ..... |
| δ Sextantis | 10 35 42.23 | ..... | α Coronæ | 15 29 0.92 | +0.08 |
| ι Leonis | 10 42 12.69 | +0.03 | α Serpentis | 15 37 40.14 | +0.08 |
| d Leonis..... | 10 53 38.34 | ..... | ϵ Serpentis. | 15 44 8.27 | ..... |
| χ Leonis | 10 58 6.19 | -0.02 | γ Serpentis..... | 15 50 15.92 | ..... |
| δ Leonis..... | 11 6 58.72 | +0.02 | β^1 Scorpïi | 15 57 38.93 | +0.04 |

| Name of Star. | Assumed Mean R.A. 1866, Jan. 1. | Corr. to Nautical Almanac. | Name of Star. | Assumed Mean R.A. 1866, Jan. 1. | Corr. to Nautical Almanac. |
|----------------------------|---------------------------------------|----------------------------------|----------------------------|---------------------------------------|----------------------------------|
| | h. m. s. | s. | | h. m. s. | s. |
| δ Ophiuchi..... | 16 7 19.49 | + 0.05 | α^2 Capricorni..... | 20 10 37.03 | + 0.07 |
| γ Herculis..... | 16 16 0.61 | ..... | β Capricorni..... | 20 13 28.77 | ..... |
| Antares..... | 16 21 11.70 | + 0.03 | ρ Capricorni..... | 20 21 12.82 | + 0.14 |
| λ Ophiuchi..... | 16 24 9.41 | ..... | ϵ Delphini..... | 20 26 48.61 | ..... |
| ζ Ophiuchi..... | 16 29 46.92 | ..... | α Delphini..... | 20 33 24.85 | ..... |
| ζ Herculis..... | 16 36 14.13 | + 0.02 | ϵ Aquarii..... | 20 40 25.15 | ..... |
| κ Ophiuchi..... | 16 51 19.56 | - 0.04 | 32 Vulpeculæ..... | 20 48 50.98 | + 0.04 |
| ϵ Herculis..... | 16 55 9.85 | ..... | θ Capricorni..... | 20 58 24.63 | ..... |
| η Ophiuchi..... | 17 2 41.68 | ..... | ζ Cygni..... | 21 7 14.03 | + 0.07 |
| α Herculis..... | 17 8 32.31 | + 0.10 | α Equulei..... | 21 9 7.43 | ..... |
| θ Ophiuchi..... | 17 13 46.92 | + 0.07 | ι Capricorni..... | 21 14 46.88 | ..... |
| σ Ophiuchi..... | 17 19 51.99 | ..... | β Aquarii..... | 21 24 30.12 | + 0.03 |
| α Ophiuchi..... | 17 28 42.89 | + 0.06 | ξ Aquarii..... | 21 30 36.94 | ..... |
| β Ophiuchi..... | 17 36 51.17 | ..... | ϵ Pegasi..... | 21 37 36.29 | + 0.03 |
| μ Herculis..... | 17 41 12.92 | + 0.07 | δ Capricorni..... | 21 39 38.44 | ..... |
| 89 Herculis..... | 17 50 0.89 | ..... | 16 Pegasi..... | 21 46 57.99 | + 0.02 |
| 72 Ophiuchi..... | 18 0 59.80 | ..... | α Aquarii..... | 21 58 53.99 | + 0.04 |
| μ Sagittarii..... | 18 5 44.94 | + 0.05 | ι Pegasi..... | 22 0 46.43 | ..... |
| η Serpentis..... | 18 14 22.57 | ..... | θ Aquarii..... | 22 9 45.62 | 0.00 |
| λ Sagittarii..... | 18 19 42.05 | ..... | γ Aquarii..... | 22 14 44.05 | ..... |
| α Lyre..... | 18 32 24.10 | + 0.07 | σ Aquarii..... | 22 23 33.18 | ..... |
| β Lyre..... | 18 45 7.98 | + 0.11 | η Aquarii..... | 22 28 28.15 | + 0.01 |
| ϵ Aquilæ..... | 18 53 32.42 | ..... | ζ Pegasi..... | 22 34 46.73 | + 0.08 |
| ζ Aquilæ..... | 18 59 15.03 | + 0.13 | μ Pegasi..... | 22 43 32.26 | ..... |
| ψ Sagittarii..... | 19 7 19.28 | ..... | λ Aquarii..... | 22 45 37.25 | ..... |
| ω Aquilæ..... | 19 11 31.57 | + 0.03 | Fomalhaut..... | 22 50 14.35 | + 0.02 |
| δ Aquilæ..... | 19 18 44.45 | + 0.03 | α Pegasi..... | 22 58 5.23 | + 0.03 |
| α Vulpeculæ..... | 19 23 7.79 | ..... | γ Piscium..... | 23 10 13.11 | + 0.01 |
| μ Aquilæ..... | 19 27 32.58 | ..... | κ Piscium..... | 23 20 3.76 | - 0.03 |
| α^2 Sagittarii..... | 19 28 32.95 | + 0.11 | ι Piscium..... | 25 33 3.49 | - 0.04 |
| γ Aquilæ..... | 19 39 53.34 | + 0.09 | δ Sculptoris..... | 23 41 56.44 | - 0.04 |
| α Aquilæ..... | 19 44 14.69 | + 0.05 | ω Piscium..... | 23 52 25.85 | - 0.04 |
| β Aquilæ..... | 19 48 43.83 | + 0.07 | 2 Ceti..... | 23 56 52.35 | ..... |
| ϵ Sagittarii..... | 19 54 24.83 | ..... |  |  |  |
| θ Aquilæ..... | 20 4 23.37 | ..... |  |  |  |

The comparison of the Apparent R.A. of each of the stars observed for the determination of clock-error with the time of transit corrected for the three instrumental errors, gives an error of the clock; and the mean of all the errors observed on any evening is supposed to correspond to the mean of the sidereal times or right ascensions. Then, by comparing similar results on successive days the rate of the clock, or its loss or gain in twenty-four hours, is determined; and the actual rate used for any group is found in general by comparing the preceding and following groups. In determining the rate, it is necessary to make allowance for personal equation when the observers are different on the days compared with each other, and the amount of the assumed correction is mentioned in the foot-notes to the table of rates and clock-errors. The times at which the clock has been put forward one minute will be readily seen without special notes.

The following table will exhibit the mean clock-errors and rates for the year 1866.

Errors and Rates of the Transit Clock during the Year 1866, used in the reduction of the Observations.

| Day, 1866. | Observer. | Sidereal Time of Mean of Group. | Clock-slow Time of correspond- ing to Mean of Group. | Clock's Loss in 24 hours. | Adopted Daily Losing Rate. | Day, 1866. | Observer. | Sidereal Time of Mean of Group. | Clock-slow Time of correspond- ing to Mean of Group. | Clock's Loss in 24 hours. | Adopted Daily Losing Rate. |
|---------------|-----------|--|---|------------------------------------|-------------------------------------|---------------|-----------|--|---|------------------------------------|-------------------------------------|
| | | h. m. | s. | s. | s. | | | h. m. | s. | s. | s. |
| Jan. 1 | Q | 0 38 | +16'85 | +0'08 | +0'12 | Jan. 25 | Q | 4 46 | +16'88 | +0'40 | +0'35 |
| 2 | " | 18 0 | 17'06 | 0'16 | 0'21 | 29 | " | 1 42 | 18'05 | 0'30 | 0'47 |
| 5 | " | 2 8 | 17'67 | 0'26 | 0'33 | 31 | " | 5 21 | 19'42 | 0'63 | 0'50 |
| 6 | " | 2 21 | 18'04 | +0'39 | +0'19 | Feb. 2 | " | 5 27 | 20'14 | 0'36 | 0'45 |
| 8 | " | 2 12 | 18'03 | -0'02 | -0'05 | 3 | " | 4 21 | 20'66 | 0'54 | 0'55 |
| 9 | " | 22 53 | 17'98 | 0'07 | 0'23 | 5 | " | 19 44 | 22'14 | 0'56 | 0'60 |
| 11 | " | 4 0 | 17'10 | 0'39 | 0'42 | 7 | " | 5 10 | 23'02 | 0'63 | +0'42 |
| 12 | " | 3 43 | 16'65 | -0'45 | -0'21 | 8 | " | 22 58 | 23'18 | +0'21 | -0'06 |
| 15 | " | 2 6 | 16'75 | +0'03 | +0'15 | 10 | " | 2 16 | 22'45 | -0'34 | -0'12 |
| 16 | " | 6 5 | 17'06 | 0'27 | +0'23 | 12 | " | 4 48 | 22'65 | +0'10 | +0'24 |
| 19 | " | 23 32 | 17'60 | +0'19 | 0'00 | 13 | " | 3 31 | 23'01 | 0'38 | +0'20 |
| 20 | " | 4 8 | 17'35 | -0'19 | -0'30 | 14 | " | 7 48 | 23'02 | +0'01 | -0'08 |
| 22 | " | 5 15 | 16'55 | 0'40 | 0'28 | 17 | " | 6 25 | 22'61 | -0'17 | 0'24 |
| 23 | " | 2 18 | 16'41 | -0'16 | -0'04 | 19 | " | 5 39 | 22'03 | 0'30 | -0'28 |
| 24 | " | 6 7 | +16'50 | +0'08 | +0'24 | 21 | " | 5 46 | +21'50 | -0'26 | 0'00 |

| Day, 1866. | Observer. | Sidereal Time of Mean of Group. | Clock-slow correspond- ing to Mean of Group. | Clock's Loss in 24 hours. | Adopted Daily Losing Rate. | Day, 1866. | Observer. | Sidereal Time of Mean of Group. | Clock-slow correspond- ing to Mean of Group. | Clock's Loss in 24 hours. | Adopted Daily Losing Rate. |
|---------------|-----------|--|---|------------------------------------|-------------------------------------|---------------|-----------|--|---|------------------------------------|-------------------------------------|
| | | h. m. | s. | s. | s. | | | h. m. | s. | s. | s. |
| Feb. 23 | Q | 6 32 | +22'10 | +0'30 | +0'20 | May 18 | Q | 10 37 | +5'56 | -0'46 | -0'48 |
| 24 | " | 6 50 | 22'20 | +0'09 | 0'00 | 19 | " | 14 25 | 4'98 | 0'50 | 0'40 |
| 25 | M | 7 9 | 21'85 | -0'05 | 0'00 | 21 | " | 9 14 | 4'43 | 0'31 | 0'25 |
| 26 | Q | 4 48 | 22'38 | +0'24 | 0'00 | 22 | " | 11 16 | 4'22 | 0'19 | 0'25 |
| 27 | " | 6 37 | 22'12 | -0'24 | -0'10 | 23 | " | 11 25 | 3'91 | 0'31 | 0'47 |
| 28 | " | 7 35 | 22'20 | +0'08 | +0'10 | 24 | " | 13 7 | 3'23 | 0'63 | 0'52 |
| Mar. 2 | " | 6 28 | 22'40 | 0'10 | 0'14 | 25 | " | 5 18 | 2'95 | 0'41 | 0'42 |
| 5 | " | 6 26 | 22'90 | 0'17 | 0'25 | 28 | " | 13 59 | 1'54 | 0'42 | 0'47 |
| 6 | " | 6 59 | 23'24 | 0'33 | 0'55 | 29 | " | 14 49 | +1'04 | 0'48 | 0'40 |
| 8 | " | 6 7 | 23'97 | 0'76 | 0'72 | June 2 | " | 15 6 | -0'13 | 0'29 | 0'23 |
| 12 | " | 6 18 | 26'68 | 0'68 | 0'69 | 6 | " | 14 11 | 0'86 | 0'18 | 0'21 |
| 13 | " | 8 22 | 27'44 | 0'70 | 0'75 | 7 | " | 14 57 | 1'11 | 0'24 | 0'14 |
| 14 | " | 7 29 | 28'15 | 0'77 | 0'77 | 8 | " | 15 9 | 1'15 | 0'04 | 0'11 |
| 16 | " | 9 17 | 29'73 | 0'77 | 0'66 | 9 | " | 5 47 | 1'26 | 0'18 | 0'17 |
| 17 | " | 7 12 | 30'23 | 0'55 | 0'72 | 16 | " | 14 7 | 2'43 | 0'10 | 0'20 |
| 27 | " | 6 6 | 39'13 | 0'89 | 1'05 | 19 | " | 16 6 | 3'92 | 0'48 | -0'37 |
| Apr. 5 | " | 8 35 | 51'10 | 1'20 | 1'40 | 22 | " | 13 44 | 4'65 | -0'25 | -0'11 |
| 6 | " | 9 18 | 52'77 | 1'62 | 1'55 | 23 | " | 12 14 | 4'62 | +0'03 | +0'02 |
| 13 | " | 11 2 | 63'28 | 1'48 | 1'44 | 25 | " | 16 33 | 4'59 | 0'01 | +0'02 |
| 14 | " | 10 13 | +64'63 | +1'40 | +1'40 | 26 | " | 12 13 | 4'56 | +0'04 | -0'05 |
| 17 | " | 11 40 | +17'90 | -0'04 | 0'00 | 27 | " | 13 35 | 4'71 | -0'14 | -0'04 |
| 18 | " | 10 51 | 17'86 | +0'01 | 0'00 | 28 | " | 16 46 | 4'64 | +0'06 | 0'00 |
| 20 | " | 10 27 | 17'88 | -0'18 | -0'07 | 29 | " | 7 32 | 4'55 | {+0'15} | } 0'00 |
| 21 | " | 11 15 | 17'69 | 0'05 | 0'10 | " | M | 14 53 | 5'01 | {-0'08} | |
| 23 | " | 11 43 | 17'59 | 0'16 | 0'12 | July 2 | Q | 7 37 | 5'07 | {-0'17} | -0'30 |
| 24 | " | 11 45 | 17'43 | 0'10 | 0'13 | 4 | " | 13 47 | 6'06 | {-0'13} | 0'36 |
| 25 | " | 11 49 | 17'33 | 0'30 | 0'20 | 7 | " | 18 23 | 7'00 | 0'29 | 0'20 |
| May 2 | " | 11 31 | 15'19 | 1'23 | 0'50 | 9 | " | 16 33 | 7'21 | 0'11 | -0'11 |
| 3 | " | 11 41 | 13'95 | 0'77 | 1'00 | 10 | " | 14 10 | 7'31 | -0'11 | 0'00 |
| 4 | " | 12 40 | 13'11 | 0'40 | 0'60 | 11 | " | 17 18 | 7'23 | +0'05 | 0'00 |
| 7 | " | 11 34 | 11'98 | 0'37 | 0'39 | 12 | " | 15 22 | 7'27 | -0'02 | +0'12 |
| 9 | " | 11 36 | 11'24 | 0'71 | 0'54 | 14 | " | 17 41 | 6'73 | +0'26 | +0'15 |
| 12 | " | 13 51 | 9'03 | 0'79 | 0'75 | 16 | " | 16 14 | 6'70 | +0'03 | 0'00 |
| 15 | " | 13 26 | 6'66 | 0'42 | 0'62 | 18 | " | 16 18 | 6'80 | -0'05 | -0'28 |
| 16 | " | 13 13 | 6'24 | -0'27 | 0'37 | 19 | " | 17 14 | -7'32 | -0'52 | -0'35 |
| 17 | " | 12 33 | +5'98 | | -0'37 | | | | | | |

Feb. 25. In deducing the value of "clock's loss in 24h," 0'30 has been added to the "clock slow" of M for comparison with Q, and in all succeeding instances.

April 14. After the observations of this day the clock was stopped and the pendulum was shortened by three-quarters of a division.

| Day, 1866. | Observer. | Sidereal Time of Mean of Group. | Clock-slow correspond- ing to Mean of Group. | Clock's Loss in 24 hours. | Adopted Daily Losing Rate. | Day, 1866. | Observer. | Sidereal Time of Mean of Group. | Clock-slow correspond- ing to Mean of Group. | Clock's Loss in 24 hours. | Adopted Daily Losing Rate. |
|---------------|-----------|--|---|------------------------------------|-------------------------------------|---------------|-----------|--|---|------------------------------------|-------------------------------------|
| | | h. m. | s. | s. | s. | | | h. m. | s. | s. | s. |
| July 20 | M | 18 29 | — 7'89 | —0'26 | —0'15 | Oct. 17 | Q | 18 33 | —49'90 | —0'75 | —0'76 |
| 21 | Q | 17 4 | 7'63 | 0'04 | 0'11 | 19 | " | 21 26 | 51'53 | 0'77 | 0'55 |
| 23 | " | 16 47 | 7'96 | 0'18 | 0'21 | 22 | " | 22 35 | 52'55 | 0'34 | 0'54 |
| 30 | " | 17 49 | 9'74 | 0'25 | 0'40 | 23 | " | 21 29 | 53'25 | 0'73 | 0'80 |
| 31 | " | 7 35 | 10'70 | 0'61 | 0'47 | 26 | " | 23 55 | 55'93 | 0'86 | 0'85 |
| Aug. 3 | " | 17 28 | 11'48 | 0'32 | 0'34 | 30 | " | 22 16 | 59'16 | 0'83 | 1'00 |
| 4 | " | 18 57 | 11'86 | 0'36 | 0'40 | 31 | " | 20 15 | 60'22 | 1'16 | 0'89 |
| 7 | " | 17 48 | 13'17 | 0'45 | 0'58 | Nov. 2 | " | 1 24 | 61'57 | 0'61 | 0'59 |
| 8 | " | 17 55 | 13'88 | 0'71 | 0'54 | 3 | " | 0 50 | 62'12 | 0'56 | 0'57 |
| 9 | " | 18 16 | 14'24 | 0'36 | 0'52 | 6 | " | 19 29 | 63'69 | 0'57 | 0'51 |
| 10 | " | 20 40 | 14'99 | 0'68 | 0'52 | 9 | " | 20 59 | 65'08 | 0'45 | 0'66 |
| 15 | " | 19 44 | 16'77 | 0'36 | 0'40 | 13 | " | 20 56 | 68'58 | 0'88 | 0'98 |
| 16 | " | 19 15 | 17'20 | 0'44 | 0'37 | 14 | " | 23 9 | 69'76 | 1'08 | 1'05 |
| 17 | " | 20 33 | 17'51 | 0'29 | 0'36 | 16 | " | 21 58 | 71'76 | 1'02 | 0'80 |
| 18 | " | 19 37 | 17'91 | 0'42 | 0'41 | 17 | " | 19 42 | 72'33 | 0'63 | 0'72 |
| 21 | " | 17 33 | 19'12 | 0'41 | 0'32 | 19 | " | 21 41 | 74'04 | 0'82 | 0'96 |
| 22 | " | 18 51 | 19'35 | 0'22 | 0'28 | 20 | " | 19 35 | 75'04 | 1'10 | 1'26 |
| 23 | " | 18 39 | 19'70 | 0'35 | 0'27 | 21 | " | 23 43 | 76'71 | 1'42 | 1'10 |
| 24 | " | 19 51 | 19'89 | 0'18 | 0'30 | 23 | " | 1 28 | 78'43 | 0'83 | 0'85 |
| 25 | M | 20 33 | 20'62 | 0'42 | 0'43 | 25 | " | 15 37 | 80'64 | 0'86 | 0'80 |
| Sept. 5 | L | 17 9 | 24'56 | 0'44 | 0'49 | 27 | " | 1 3 | 81'64 | 0'72 | 0'75 |
| 11 | " | 21 31 | 27'83 | 0'53 | 0'60 | 30 | " | 20 3 | 83'87 | 0'79 | 0'90 |
| 14 | " | 16 24 | 29'70 | 0'67 | 0'47 | Dec. 7 | " | 1 5 | 91'08 | 1'00 | 1'00 |
| 15 | " | 17 18 | 29'98 | 0'27 | 0'45 | 8 | " | 21 54 | —91'98 | —1'03 | —1'00 |
| 17 | Q | 21 26 | 31'82 | 0'62 | 0'66 | 10 | " | 1 3 | +26'28 | | +3'13 |
| 19 | " | 21 25 | 33'21 | 0'70 | 0'59 | 12 | " | 0 44 | 26'46 | +0'09 | 0'18 |
| 21 | " | 20 30 | 34'15 | 0'48 | 0'59 | 13 | " | 1 55 | 26'74 | +0'27 | 0'11 |
| 24 | " | 21 47 | 36'28 | 0'69 | 0'65 | 14 | " | 1 5 | 26'69 | —0'05 | 0'05 |
| Oct. 3 | " | 20 10 | 41'76 | 0'61 | 0'52 | 15 | " | 0 47 | 26'84 | +0'15 | 0'25 |
| 6 | " | 21 7 | 43'07 | 0'43 | 0'44 | 19 | " | 22 40 | 28'20 | 0'34 | 0'45 |
| 8 | " | 20 45 | 43'97 | 0'45 | 0'54 | 20 | " | 18 32 | 28'69 | 0'59 | 0'43 |
| 9 | " | 20 20 | 44'59 | 0'63 | 0'64 | 28 | " | 3 59 | 30'94 | 0'27 | 0'31 |
| 15 | " | 19 47 | 48'46 | 0'65 | 0'69 | 29 | " | 4 7 | 31'29 | +0'35 | +0'07 |
| 16 | " | 19 36 | —49'18 | —0'73 | —0'74 | 31 | " | 1 52 | +31'10 | —0'21 | 0'00 |

Sept. 5 and 15. The correction $-0'50$ has been applied to the "clock slow" of L for comparison with Q.

Dec. 8. After the observations of this day the clock was stopped and the pendulum lengthened by three-quarters of a division.

By means of the clock-errors for the times corresponding to the means of the groups, given in this table, the errors are very readily applied to the times of transit of all the objects observed, on the sheets wherein the reduction of the observations is performed (without previous reduction to the 0^h sidereal preceding), by application of the proportional part of the assumed rate, and thus the Apparent Right Ascensions of all observed objects are found.

For reduction to Mean R.A. of Stars for Jan. 1, 1866, the Nautical Almanac has been used for all stars contained in that work, by comparison of the Mean and Apparent Right Ascensions for each day required. For stars used for determining clock-error, not contained in the Nautical Almanac, the constants $\log a$, $\log b$, $\log c$, and $\log d$, have been computed for the epoch 1865, and are used in conjunction with the values of $\log A$, $\log B$, $\log C$, and $\log D$, given in the Nautical Almanac, for computation of the correction to Mean or Apparent Right Ascension. For stars in the British Association Catalogue the values of the constants given in that work are used; and, finally, for all other stars (including those selected from the *Radcliffe Catalogue* for determination of azimuthal error) the constants have been computed for the epoch 1865. These constants, as well as those of all unknown stars not contained in the B.A.C., are given at pages 71 to 84.

In the cases of the sun, moon, and the planet Mercury, when only one limb has been observed, a correction for the duration of transit of the semidiameter is needed; and the numbers are taken without alteration from the Nautical Almanac.

SECTION III.—*Reduction of the Observations of Zenith Distance made with the Transit Circle.*

In the Introduction to the volume for 1863, observations are exhibited for the determination of the value of the screw of the declination-micrometer, by which it appeared that the most probable value is $32''.09$, and the use of this value has been continued during the year 1866.

The following observations were made by Mr. Quirling in the year 1866, for the determination of the flexure of the telescope of the transit circle.

| Day, 1866. | Concluded Circle Reading for Bisection of North Collimator. | Concluded Circle Reading for Bisection of South Collimator. |
|---------------|--|--|
| | ° ' " | ° ' " |
| July 2 | 308 ° 39'59 39'66 39'70 | 128 ° 37'19 37'55 37'44 |
| Means... | 308 ° 39'65 | 128 ° 37'39 |

Hence the amount of astronomical flexure is

$$\frac{39''.65 - 37''.39}{2} = \frac{2''.26}{2} = 1''.13,$$

to be applied additively to south horizontal readings. The correction $+1''.13 \times \sin.$ south zenith distance has been applied to all circle-readings throughout the year. This result is almost identical with that obtained in 1865, namely, $1''.20 \times \sin.$ zenith distance.

The examination of the divisions of the graduated circle was made early in the year 1863, on Jan. 2 and 3; the eight microscopes of the circle having been read for positions at intervals of 5° round the whole circle. The observations are recorded in the Introduction to the volume for 1862, but it will be proper to give in this place an account of the investigation, and an abstract of the results.

The usual process was used for deducing the error of each diameter under the microscopes; namely, by first subtracting the mean of the sums of all the opposite pairs from the sum of each pair taken separately, and then subtracting the mean of all these differences for each diameter from the separate differences. The remainders are considered to be errors of the sum of readings for each diameter under the microscopes, arising from error of division. As each error recurs eight times, one reading of the circle gives a result of considerable accuracy.

The following table exhibits the results, the argument being the pointer-reading for the diameter under the pair of horizontal microscopes (A. C).

| Pointer Reading. | Error. | Pointer Reading. | Error. |
|---------------------|--------|---------------------|--------|
| ° ° | " | ° ° | " |
| 0 or 180 | — 1'00 | 90 or 270 | — 0'31 |
| 5 „ 185 | — 0'36 | 95 „ 275 | + 0'55 |
| 10 „ 190 | 0'00 | 100 „ 280 | + 1'14 |
| 15 „ 195 | — 0'80 | 105 „ 285 | + 0'14 |
| 20 „ 200 | + 0'08 | 110 „ 290 | — 0'18 |
| 25 „ 205 | — 0'58 | 115 „ 295 | — 0'44 |
| 30 „ 210 | + 0'18 | 120 „ 300 | — 2'03 |
| 35 „ 215 | — 0'50 | 125 „ 305 | — 0'78 |
| 40 „ 220 | — 0'04 | 130 „ 310 | + 0'93 |
| 45 „ 225 | + 0'11 | 135 „ 315 | + 0'81 |
| 50 „ 230 | — 0'38 | 140 „ 320 | — 0'13 |
| 55 „ 235 | — 0'95 | 145 „ 325 | — 0'16 |
| 60 „ 240 | — 0'80 | 150 „ 330 | + 1'35 |
| 65 „ 245 | — 1'80 | 155 „ 335 | + 2'00 |
| 70 „ 250 | — 0'58 | 160 „ 340 | + 1'06 |
| 75 „ 255 | — 0'53 | 165 „ 345 | + 0'30 |
| 80 „ 260 | + 0'53 | 170 „ 350 | — 0'71 |
| 85 „ 265 | + 0'01 | 175 „ 355 | — 0'90 |

As the four new microscopes (placed diagonally on the pier with regard to the original ones) were always used for observation after they were mounted, it will be necessary to deduce from the preceding table the actual corrections to be applied to the mean of their readings. Calling the original microscopes (horizontal and vertical) A, B, C, D, in circular order, beginning with the north horizontal microscopes, and the new microscopes a, b, c, d, (a being next to A); then, for any given pointer-reading, the division under a—c will be at a part of the circle having a less reading by 45° than those under A—C, and the divisions under b—d will have a less reading by 135° . The proper correction, then, for any pointer-reading will be, on the mean of the four microscopes, one-fourth of the sum of the errors (with signs changed), at readings less than the pointer-readings above by 45° and 135° respectively. The following table has thus been formed from that preceding, and exhibits the corrections actually to be applied to the observations.

| Pointer Reading. | Correction. | Pointer Reading. | Correction. |
|---------------------|-------------|---------------------|-------------|
| 0 or 180 | " | 90 or 270 | " |
| 5 " 185 | — 0·23 | 95 " 275 | — 0·23 |
| 10 " 190 | + 0·13 | 100 " 280 | + 0·13 |
| 15 " 195 | + 0·28 | 105 " 285 | + 0·28 |
| 20 " 200 | — 0·14 | 110 " 290 | — 0·14 |
| 25 " 205 | — 0·05 | 115 " 295 | — 0·05 |
| 30 " 210 | — 0·12 | 120 " 300 | — 0·12 |
| 35 " 215 | + 0·06 | 125 " 305 | + 0·06 |
| 40 " 220 | + 0·05 | 130 " 310 | + 0·05 |
| 45 " 225 | + 0·22 | 135 " 315 | + 0·22 |
| 50 " 230 | + 0·33 | 140 " 320 | + 0·33 |
| 55 " 235 | — 0·05 | 145 " 325 | — 0·05 |
| 60 " 240 | — 0·29 | 150 " 330 | — 0·29 |
| 65 " 245 | + 0·17 | 155 " 335 | + 0·17 |
| 70 " 250 | + 0·03 | 160 " 340 | + 0·03 |
| 75 " 255 | + 0·26 | 165 " 345 | + 0·26 |
| 80 " 260 | + 0·46 | 170 " 350 | + 0·46 |
| 85 " 265 | + 0·32 | 175 " 355 | + 0·32 |
| | — 0·22 | | — 0·22 |

These corrections were graphically represented by the ordinates of a curve drawn so as to give the most probable values of them, and have been applied to all the circle-readings during the year 1866.

I will now proceed with the explanation of the computations for the reduction of the observations of zenith distance.

During the whole of the year the four microscopes placed diagonally on the pier were read for every observation, and the runs were obtained in the course of the observations of each night by reading, for a certain number of objects, both the preceding and the following division of the circle. The corrections for runs have been scrupulously applied, and the following table gives the amount actually applied, with the limiting times of determination of each separate value.

| Interval of Time. | Runs on s'. | Interval of Time. | Runs on s'. |
|-------------------|----------------|-------------------|----------------|
| 1866. | " | 1866. | " |
| January | — 0·80 | July | — 0·84 |
| February | — 0·58 | August | — 0·40 |
| March | — 0·82 | September | — 0·46 |
| April | — 0·43 | October | — 0·69 |
| May | — 0·53 | November | — 0·51 |
| June | — 0·32 | December | — 0·65 |

For stars observed at a small distance from the central wires (generally at one of the side wires) the correction for curvature has been computed by the usual formula and applied to the circle-reading. The correction is

$$0''\cdot1131 \times \cot \text{N.P.D.} \times (\text{wire} - 4)^2.$$

A correction is also applied for the want of horizontality of the wire. By means of nineteen readings of the micrometer at wires I and XIII (the first and seventh of the wires at large intervals) made at various times in the year 1866, it was found that the excess of reading at the first wire above that at the thirteenth wire was 0·072 or 2''·31. Hence, for three intervals the correction to be applied to the circle-reading is 1''·14—negatively before the transit, and positively after the transit.

In the case of a planet or the moon the correction for motion in N.P.D. in the interval has also been applied.

For the observation of the sun, and of the moon when both limbs in R.A. or N.P.D. are observed, the transits of the first and second limbs over the wires, and the bisections of the north and south limbs by the horizontal micrometer wire have been made in all cases by Mr. Quirling, and the microscope-micrometers have been read by Mr. Lucas.

It has been the practice, as at Greenwich, to make several bisections of the moon's limb while passing the vertical wires, and the observation for each bisection has been accurately reduced to the meridian by a formula similar to that used at Greenwich.

The readings of the telescope-micrometer have then been reduced to arc, assuming the value of one revolution to be 32''·09, and the resulting numbers, being added to the corrected circle-readings, form the concluded meridional circle-readings.

For the determination of the zenith-point it has been the practice to observe on each night, whenever it is possible, one star north of the

zenith and one star south of the zenith by reflexion and direct vision, in addition to the observation of the reflected image of the wire.

The following table gives the seconds of zenith-point as determined by the observations of stars by reflexion, and by the reflected image of the wire, divided into groups determined by the apparent changes in the values. The observations of stars by reflexion are, it will be seen, scanty, and not altogether satisfactory.

Seconds of Zenith Point in 1866, as observed by Mr. Quirling.

| Date. 1866. | North Stars. | Nadir. | South Stars. | Date. 1866. | North Stars. | Nadir. | South Stars. |
|----------------|-----------------|--------|-----------------|----------------|-----------------|--------|-----------------|
| | " | " | " | | " | " | " |
| Jan. 1 | ..... | 9'08 | ..... | Feb. 24 | ..... | 7'31 | ..... |
| to | ..... | 8'12 | ..... | to | ..... | 7'24 | ..... |
| Jan. 12 | ..... | 8'98 | ..... | Mar. 27 | ..... | 5'14 | ..... |
|  | ..... | 7'81 | ..... |  | 5'17 | 6'61 | 6'63 |
|  | ..... | 7'43 | ..... |  | 5'76 | 7'47 | 5'66 |
|  | ..... | 7'90 | ..... |  | ..... | 6'60 | ..... |
| | 5'14 | 8'11 | 7'17 |  | ..... | 7'04 | ..... |
| | 7'73 | 7'95 | 6'93 |  | ..... | 6'62 | ..... |
| Means... | 6'43 | 8'17 | 7'05 |  | ..... | 6'29 | ..... |
| Jan. 15 | ..... | 7'18 | ..... |  | (8'99) | 5'07 | 3'52 |
| to | ..... | 7'03 | ..... |  | ..... | 5'74 | ..... |
| Feb. 21 | 6'85 | 6'89 | 3'61 |  | ..... | 6'49 | ..... |
|  | ..... | 7'13 | ..... |  | ..... | 5'92 | ..... |
| | 5'14 | 7'25 | 5'11 | Means... | 5'46 | 6'43 | 5'27 |
|  | ..... | 7'02 | ..... |  |  |  |  |
| | 4'96 | 7'50 | 5'85 | April 5 | ..... | 5'43 | ..... |
|  | ..... | 7'36 | ..... | to | ..... | 5'61 | ..... |
|  | ..... | 7'47 | ..... | April 25 | 4'17 | 5'21 | 3'70 |
| | 5'29 | 7'33 | 5'13 |  | ..... | 5'98 | ..... |
|  | ..... | 7'19 | ..... |  | ..... | 5'99 | ..... |
|  | ..... | 7'92 | ..... |  | 3'77 | 4'64 | ..... |
|  | ..... | 7'88 | ..... |  | ..... | 6'42 | ..... |
|  | ..... | 7'37 | ..... |  | ..... | 4'89 | ..... |
| | 5'32 | 7'42 | 7'54 |  | ..... | 5'90 | ..... |
| | 4'37 | 7'72 | 6'38 | | 4'01 | 5'11 | 4'41 |
| | 5'22 | 8'18 | 6'75 |  | ..... | 5'35 | ..... |
|  | ..... | 7'46 | {6'15 4'85 | Means... | 3'98 | 5'50 | 4'06 |
| | 7'17 | 6'48 | (2'57) | | | | |
| Means... | 5'52 | 7'36 | 5'71 | May 2 | ..... | 6'14 | ..... |
| | | | | to | ..... | 5'63 | ..... |
| | | | | May 29 | ... .. | 6'07 | ..... |

| Date 1866. | North Stars. | Nadir. | South Stars. | Date 1866. | North Stars. | Nadir. | South Stars. |
|---------------|-----------------|--------|-----------------|---------------|-----------------|--------|-----------------|
| | " | " | " | | " | " | " |
| May 2 | ..... | 5°56 | ..... | July 11 | ..... | 60°89 | ..... |
| to | ..... | 4°93 | ..... | to | ..... | 61°08 | ..... |
| May 29 | ..... | 6°17 | ..... | Oct. 19 | ..... | 61°83 | ..... |
|  | ..... | 6°37 | ..... |  | ..... | 61°74 | ..... |
|  | ..... | 6°05 | ..... |  | ..... | 60°78 | ..... |
|  | ..... | 5°90 | ..... |  | ..... | 61°40 | ..... |
|  | ..... | 5°52 | ..... |  | ..... | 61°93 | ..... |
|  | ..... | 6°75 | ..... |  | ..... | 62°29 | ..... |
|  | ..... | 5°85 | ..... |  | ..... | 61°41 | ..... |
|  | ..... | 4°96 | ..... |  | ..... | 61°79 | ..... |
|  | ..... | 6°81 | ..... |  | ..... | 61°81 | ..... |
|  | ..... | 5°82 | ..... |  | ..... | 62°39 | ..... |
|  | ..... | 6°51 | ..... |  | 59°46 | 61°63 | 57°71 |
| Mean ... | ..... | 5°94 | ..... |  | ..... | 61°04 | ..... |
|  |  |  |  |  | ..... | 61°69 | ..... |
| June 2 | ..... | 5°92 | ..... |  | ..... | 62°30 | ..... |
| to | ..... | 5°15 | ..... |  | ..... | 62°09 | ..... |
| July 10 | 5°03 | 6°60 | 3°85 |  | ..... | 60°25 | ..... |
| | 5°42 | 6°00 | 3°92 | | 59°34 | 60°50 | 60°33 |
|  | ..... | 5°12 | ..... |  | ..... | 61°47 | ..... |
| | 4°10 | 5°80 | (1°96) | | 59°60 | 61°78 | 60°81 |
| | 2°69 | 4°83 | ..... |  | ..... | 62°10 | ..... |
| | 6°29 | 4°14 | 2°56 |  | ..... | 61°37 | ..... |
|  | ..... | 5°12 | ..... |  | ..... | 62°22 | ..... |
|  | ..... | 4°25 | 2°70 |  | ..... | 61°70 | ..... |
|  | ..... | 4°54 | ..... |  | ..... | 61°52 | ..... |
| | 5°61 | 4°47 | 4°65 | | 60°17 | 60°96 | 61°99 |
|  | ..... | 3°83 | ..... |  | ..... | 61°19 | ..... |
|  | ..... | 4°95 | ..... |  | ..... | 62°82 | ..... |
|  | ..... | 4°82 | ..... |  | ..... | 60°58 | ..... |
|  | ..... | 4°20 | ..... |  | ..... | 61°56 | ..... |
| Means... | 4°86 | 4°99 | 3°54 | | 61°96 | 61°70 | 60°41 |
|  |  |  |  |  | ..... | 61°70 | ..... |
|  |  |  |  |  | ..... | 60°94 | ..... |
| July 11 | ..... | 60°84 | ..... | Means... | 59°96 | 61°57 | 60°05 |
| to | 56°82 | 61°85 | 58°85 | | | | |
| Oct. 19 | 62°39 | 62°40 | 59°44 | | | | |
|  | ..... | 62°21 | ..... | Oct. 22 | 59°50 | 60°75 | 58°70 |
|  | ..... | 61°85 | ..... | to | ..... | 59°90 | ..... |
|  | ..... | 61°03 | 60°89 | Dec. 31 | ..... | 61°25 | ..... |

| Date 1866. | North Stars. | Nadir. | South Stars. | Date 1866. | North Stars. | Nadir. | South Stars. |
|-------------------|-----------------|--------|-----------------|---------------|-----------------|--------|-----------------|
| | " | " | " | | " | " | " |
| Oct. 22 | | 60°68 | ..... | Oct. 22 | ..... | 61°34 | ..... |
| to | | 61°74 | ..... | to | ..... | 60°31 | ..... |
| Dec. 31 | 60°23 | 61°44 | 58°97 | Dec. 31 | ..... | 59°30 | ..... |
| <i>continued.</i> | | 60°91 | ..... |  | 58°38 | 59°41 | 57°12 |
| | | 60°58 | ..... |  | 57°38 | 60°44 | 59°20 |
| | | 61°98 | ..... |  | ..... | 58°37 | ..... |
| | | 61°44 | ..... |  | ..... | 59°85 | ..... |
| | | 60°29 | ..... |  | 56°20 | 59°94 | 56°31 |
| | | 61°46 | ..... |  | 57°56 | 60°08 | 58°22 |
| | | 61°87 | ..... |  | ..... | 61°41 | ..... |
| | | 61°37 | ..... |  | ..... | 61°63 | ..... |
| | 59°57 | 61°03 | 59°33 | | 60°36 | 61°55 | ..... |
| | | 62°10 | ..... | Means... | 58°65 | 60°80 | 58°26 |
| | | 60°70 | ..... |  |  |  |  |

If the means of the seconds of nadir-point be taken in each of the groups given above, and the individual differences between these means and the seconds of zenith-point for each star be assumed to be represented by a function of the form $a' \cos z + a'' \cos 2z$ as on former occasions, we obtain the two final equations—

$$a' - 0.043 a'' = + 1''.66.$$

$$\text{and } a' - 0.676 a'' = + 1''.70.$$

By which it appears that a'' may be neglected, and the correction to be applied to all circle-readings will be very nearly $1''.60 \cos z$, which quantity has been applied for the year.

The following table gives a synopsis of the results previously detailed.

| Group. | Limits of Time. | Observer. | Seconds by North Stars. | Seconds by South Stars. | Means. | Nadir Seconds. | Excess of Nadir Seconds. | Number of Stars. |
|--------|-------------------|-----------|-------------------------|-------------------------|--------|----------------|--------------------------|------------------|
| | 1866. | | " | " | " | " | " | |
| 1 | Jan. 1 to Jan. 12 | Q | 6.43 | 7.05 | 6.74 | 8.17 | + 1.43 | 4 |
| 2 | Jan. 15 „ Feb. 21 | „ | 5.52 | 5.71 | 5.62 | 7.36 | + 1.74 | 17 |
| 3 | Feb. 24 „ Mar. 17 | „ | 5.46 | 5.27 | 5.36 | 6.43 | + 1.07 | 5 |
| 4 | Apr. 5 „ Apr. 25 | „ | 3.98 | 4.06 | 4.02 | 5.50 | + 1.48 | 5 |
| 5 | June 2 „ July 10 | „ | 4.86 | 3.54 | 4.20 | 4.99 | + 0.79 | 11 |
| 6 | July 11 „ Oct. 19 | „ | 59.96 | 60.05 | 60.00 | 61.57 | + 1.57 | 15 |
| 7 | Oct. 22 „ Dec. 31 | „ | 58.65 | 58.26 | 58.46 | 60.80 | + 2.34 | 15 |
| | Means | | | | | | + 1.60 | 72 |

The reflexion-observations during the year 1866 were, as in the preceding years, scanty, and the agreement of the results not quite so satisfactory as could be desired; yet there is a tolerable agreement in the correction to be applied to the nadir-seconds, and the correction $+ 1''.60 \times \cos z$, previously mentioned as applied to all circle-readings, ought to be very near the truth. Yet in the sequel it will be found that there are difficulties in the reception of it, and that its application must be considered to a certain extent provisional.

The following table gives the zenith-points which have been actually applied, with the limits of the use of each.

| Interval of Time. | Zenith Points applied. | Interval of Time. | Zenith Points applied. |
|-------------------|------------------------|--------------------|------------------------|
| 1866. | ° ' " | 1866. | ° ' " |
| Jan. 1 to Jan. 12 | 38 15 6.74 | June 29 to June 30 | 38 15 1.20 |
| Jan. 14 „ Feb. 23 | 5.63 | July 2 „ July 10 | 2.85 |
| Feb. 24 „ Mar. 27 | 5.36 | July 11 „ Oct. 19 | 38 14 60.00 |
| Apr. 5 „ Apr. 27 | 4.02 | Oct. 22 „ Dec. 21 | 58.46 |
| May 2 „ May 30 | 4.34 | Dec. 28 „ Dec. 31 | 59.93 |
| June 2 „ June 29 | 4.20 | | |

In explanation of the change which occurs on June 29 it may be mentioned that the microscope-micrometer *d* was altered by me so as to diminish its readings by several seconds; and the zenith-point adopted for June 29 and 30 was deduced by comparison of several readings of all the microscopes before and after the change.

The zenith-point adopted for July 2 to 10 is obtained by subtracting $1''.10$ for the nadir-points observed on July 2, 4, 9, and 10. Similar explanation applies to the zenith-point from Dec. 28 to 31.

The zenith-points having been subtracted from the concluded circle readings, the apparent south zenith distances of all the objects observed are obtained, and these are converted into true distances from the astronomical zenith by the application of the refractions. The latter are calculated from Bessel's tables as given in the Appendix to the *Greenwich Observations* for 1853, but diminished in the proportion of $1 : 0.9967$, in order to make the results identical with those of the tables in Bessel's *Fundamenta Astronomiæ*, as these were found to be more consistent with the Radcliffe Observations than those of the *Tabulæ Regiomontanæ*. (See *Radcliffe Observations*, vol. XV. p. xxiv, &c.)

The barometer which was used throughout the year for recording the pressure of the air for the reduction of the observations of zenith distance is that by Jones, as is stated at pages ii and iii, of which the readings are probably about 0.01 inches too low as compared with the standard.

The exterior thermometer has been in use since 1840, and was originally compared and found to agree with those formerly at the Royal Society. (*Radcliffe Observations*, vol. I. p. xix.)

Parallax and Semidiameter.—The horizontal equatorial parallax of the sun has on the authority of recent investigations been assumed to be $8''.94$, and the actual parallaxes for each day have been calculated in a table so arranged as to apply with sufficient accuracy for any year.

For the moon, the horizontal equatorial parallax and the semidiameter are interpolated by second differences for the time of Oxford transit from the numbers given in the Nautical Almanac without alteration, the process of interpolation being rendered easier by special tables made by me for this purpose. The parallax applied to the observations is computed from the formula—

$$\text{Sine Parallax} = r \times \text{Sine Equ. Hor. Par.} \times \text{Sine Distance from Geocentric Zenith,}$$

where $\log r = 9.9991091$, and the angle of the vertical is assumed to be $11' 10''.13$, as computed with the ellipticity of the earth $\frac{1}{300}$.

For the sun, when only one limb has been observed, and for the moon and Mercury, the semidiameters given in the Nautical Almanac have been applied without alteration.

In all interpolations from the Nautical Almanac the longitude of the Observatory has been assumed to be $5^m 28.6$ west of Green-

wich—this being the result of a very careful chronometrical determination made in 1842 by the late Rev. Richard Sheepshanks.

It may be mentioned, to prevent misapprehension, that no change of longitude has been occasioned by the use of the transit circle, of which the telescope occupies exactly the same position as did the transit instrument previously in use.

SECTION IV.—*Separate Results for Mean R.A. and Mean N.P.D. of Stars observed in the Year 1866.*—Pages 2 to 70.

In all which has preceded, it has been attempted to give an adequate explanation of the various processes employed in the reduction of the observations, together with a description of the Transit Circle, and of its adjustments. The reader will thus be enabled to judge of the degree of care which has been taken to insure accuracy, though the observations themselves are not printed. In what follows, reference will be made to the sections of the printed tabular matter, and the R.A.'s and N.P.D.'s will be discussed separately.

I. *Separate Results for Mean R.A.*

These need little explanation. They are taken without any alteration from the sheets in which the reductions have been performed, and the nomenclature of the stars has been previously explained.

The Constants for unknown stars observed in the year 1866 are printed because they may be found useful to persons who may have occasion to make use of the places of these stars. The constants for the stars, near the pole, used for the determination of azimuthal error, are given for two epochs, that they may be taken out accurately for any year not differing much from the year 1870.

The notes which follow are necessary for enabling a judgment to be formed of the effect which atmospheric and accidental circumstances may have had on the quality of the observations. A note is also given for every case wherein a star has been observed over a smaller number of wires than five.

II. *Separate Results for Mean N.P.D.*

The results are copied without alteration from the sheets in which the reductions to Mean N.P.D. of the circle observations are performed. The colatitude which has been used is $38^{\circ} 14' 24''.3$; and, for its correction, use has been made of all suitable observations of stars observed above and below pole in the year 1866. A table, exhibiting the results of this investigation, will be given in the sequel.

For the purpose of discovering whether, with regard to the observations made by reflexion, there is any difference following a law between the reflexion-results, and the direct-results, the following table has been drawn out, which exhibits the stars in the order of North Polar Distance, and the separate values of the seconds of reflexion-results (R) and of direct-results (D).

Excess of Reflexion-results above Direct-results in observations of Zenith Distance with the Transit Circle, for 1866.

| Name of Star. | Approximate N.P.D. | Seconds of R. | Seconds of D. | R—D. | Number of Obs. | | Weight. |
|-------------------------------|-----------------------|------------------|------------------|----------|----------------|----|---------|
| | | | | | R. | D. | |
| | ° ' " | " | " | " | | | |
| λ Ursæ Minoris | 1 6 | 39'20 | 37'50 | + 1'70 | 1 | 5 | 3 |
| Polaris | 1 24 | 19'39 | 20'61 | — 1'22 | 2 | 20 | 7 |
| 24 Ursæ Minoris | 3 1 | 2'31 | 7'09 | (— 4'78) | 1 | 1 | 2 |
| ϵ Ursæ Minoris | 7 45 | 52'15 | 52'73 | — 0'58 | 2 | 2 | 4 |
| Groombridge 2456 ... | 9 45 | 57'36 | 57'15 | + 0'21 | 1 | 1 | 2 |
| B.A.C. 7678 | 10 20 | 46'68 | 50'21 | — 3'53 | 1 | 1 | 2 |
| Groombridge 1852 ... | 12 21 | 43'53 | 43'82 | — 0'29 | 1 | 1 | 2 |
| B.A.C. 2210 | 12 52 | 34'41 | 37'48 | — 3'07 | 1 | 1 | 2 |
| γ Cephei | 13 7 | 56'99 | 59'14 | — 2'15 | 2 | 2 | 4 |
| B.A.C. 1509 | 16 27 | 35'80 | 34'65 | + 1'15 | 1 | 1 | 2 |
| ψ^1 Draconis | 17 47 | 14'76 | 12'98 | + 1'78 | 2 | 2 | 4 |
| 50 Cassiopeiæ | 18 14 | 47'06 | 46'43 | + 0'63 | 2 | 2 | 4 |
| 11 Cephei | 19 18 | 19'88 | 19'07 | + 0'81 | 1 | 1 | 2 |
| β Cephei | 20 2 | 40'47 | 40'80 | — 0'33 | 1 | 1 | 2 |
| 4 Draconis | 20 3 | 24'02 | 23'51 | + 0'51 | 1 | 1 | 2 |
| B.A.C. 2439 | 21 16 | 57'27 | 57'48 | — 0'21 | 2 | 2 | 4 |
| 7 Draconis | 22 29 | 38'69 | 38'67 | + 0'02 | 1 | 1 | 2 |
| B.A.C. 1751 | 24 23 | 52'00 | 50'06 | + 1'94 | 1 | 1 | 2 |
| ι Cephei | 24 30 | 17'00 | 15'68 | + 1'32 | 1 | 1 | 2 |
| ξ Cephei | 26 1 | 27'61 | 31'53 | — 3'92 | 1 | 1 | 2 |
| B.A.C. 1111 | 27 13 | 22'22 | 21'18 | + 1'04 | 4 | 4 | 8 |
| η Draconis | 28 11 | 56'63 | 57'51 | — 0'88 | 3 | 7 | 8 |
| 2 Lynceis | 30 57 | 42'86 | 45'51 | — 2'65 | 2 | 2 | 4 |
| 15 Lyncis | 31 24 | 22'93 | 22'10 | + 0'83 | 1 | 1 | 2 |
| 4 Camelopardali ... | 33 29 | 7'55 | 8'49 | — 0'94 | 2 | 2 | 4 |

| Name of Star. | Approximate N.P.D. | Seconds of R. | Seconds of D. | R-D. | Number of Obs. | | Weight. |
|---------------------------|-----------------------|------------------|------------------|----------|----------------|----|---------|
| | | | | | R. | D. | |
| | ° ' " | " | " | | | | |
| α Persei | 40 37 | 13'21 | 8'90 | (+ 4'31) | 1 | 1 | 2 |
| Capella | 44 9 | 31'16 | 32'35 | - 1'19 | 1 | 1 | 2 |
| β Aurigæ | 45 4 | 12'93 | 13'37 | - 0'44 | 1 | 1 | 2 |
| ϵ Aurigæ | 46 23 | 46'88 | 44'38 | + 2'50 | 2 | 2 | 4 |
| 63 Aurigæ | 50 28 | 51'32 | 53'56 | - 2'24 | 1 | 1 | 2 |
| 38 Lynceis | 52 38 | 59'79 | 56'11 | + 3'68 | 1 | 1 | 2 |
| θ Aurigæ | 52 48 | 3'53 | 1'81 | + 1'72 | 2 | 4 | 5 |
| δ^2 Lyrae | 53 16 | 18'19 | 14'66 | + 3'53 | 1 | 1 | 2 |
| γ Trianguli | 56 46 | 30'36 | 29'76 | + 0'60 | 2 | 2 | 4 |
| ζ Herculis | 58 9 | 13'37 | 10'65 | + 2'72 | 1 | 14 | 4 |
| ζ Persei | 58 31 | 1'90 | 2'61 | - 0'71 | 1 | 3 | 3 |
| 64 Pegasi | 58 55 | 16'52 | 17'08 | - 0'56 | 2 | 2 | 4 |
| δ Herculis | 59 27 | 18'41 | 19'31 | - 0'90 | 1 | 1 | 2 |
| ψ Tauri | 61 22 | 52'68 | 52'01 | + 0'67 | 1 | 2 | 3 |
| Pollux | 61 39 | 14'73 | 12'64 | + 2'09 | 1 | 4 | 3 |
| μ Cygni | 61 52 | 44'54 | 42'88 | + 1'66 | 1 | 2 | 3 |
| α Coronæ | 62 50 | 57'60 | 58'58 | - 0'98 | 2 | 10 | 7 |
| 56 Herculis | 64 3 | 7'26 | 4'29 | + 2'97 | 1 | 1 | 2 |
| 16 Pegasi | 64 42 | 13'89 | 16'62 | - 2'73 | 1 | 3 | 3 |
| κ Geminorum | 65 17 | 58'10 | 60'25 | - 2'15 | 2 | 2 | 4 |
| ι Pegasi | 65 18 | 29'75 | 30'85 | - 1'10 | 1 | 5 | 3 |
| ψ Pegasi | 65 36 | 16'46 | 18'20 | - 1'74 | 1 | 1 | 2 |
| μ Pegasi | 66 6 | 21'13 | 21'08 | + 0'05 | 1 | 4 | 3 |
| 8 Comæ | 66 13 | 16'59 | 15'95 | + 0'64 | 1 | 1 | 2 |
| W.B. (2) XVII. 1433 | 67 39 | 44'83 | 40'35 | (+ 4'48) | 1 | 1 | 2 |
| 98 Herculis | 67 47 | 28'92 | 27'80 | + 1'12 | 1 | 1 | 2 |
| 26 Comæ | 68 12 | 0'38 | 0'00 | + 0'38 | 1 | 2 | 3 |
| ψ^1 Piscium | 69 14 | 39'79 | 39'30 | + 0'49 | 1 | 1 | 2 |
| β Delphini | 75 52 | 13'77 | 9'18 | (+ 4'59) | 1 | 1 | 2 |
| 72 Ophiuchi | 80 27 | 10'01 | 8'54 | + 1'67 | 1 | 6 | 4 |
| β Canis Minoris ... | 81 26 | 36'27 | 35'75 | + 0'52 | 1 | 3 | 3 |

By grouping the preceding results in the usual way, we get the following table.

Excess of Reflexion-results above Direct-results from Groups of Stars.

| Extent of Group. | Weight. | Mean N.P.D. | Mean Zenith Distance. | Mean Value of R—D. | Mean Corr. to D. |
|--------------------------------------|---------|----------------|-----------------------------|--------------------------|------------------------|
| | | ° ' " | ° ' " | " | " |
| λ Ursæ Minoris to B.A.C. 7678 ... | 18 | 4 41 | — 33 33 | — 0'69 | — 0'35 |
| Groombridge 2852 to γ Draconis | 30 | 17 37 | — 20 37 | — 0'15 | — 0'08 |
| B.A.C. 1751 to α Camelopardalis... | 32 | 28 33 | — 9 41 | — 0'40 | — 0'20 |
| Capella to δ ² Lyrae..... | 19 | 49 31 | + 11 17 | + 1'52 | + 0'76 |
| γ Trianguli to α Coronæ..... | 33 | 59 33 | + 21 39 | + 0'41 | + 0'20 |
| 56 Herculis to δ Comæ | 19 | 65 45 | + 27 31 | — 0'85 | — 0'43 |
| 98 Herculis to β Canis Minoris ... | 14 | 72 18 | + 34 4 | + 0'90 | + 0'45 |

The large values of R—D in some of the groups I am inclined to attribute to the uneliminated errors of observation arising from the scantiness of the results, and they do not follow a simple law sufficiently well to allow of any correction being applied with safety.

In the year 1866, as usual, a considerable number of circumpolar stars, observed in N.P.D. above and below pole, were available for the determination of the correction due to the assumed colatitude. The results are given in the following table, which needs no explanation, excepting that the weights are the nearest whole numbers to those calculated from the expression $\frac{10\,nn'}{n+n'}$, where n and n' are respectively the number of observations above and below the pole. To the observation of each of these stars, considered with reference to its distance from the zenith, is attributed equal weight, as the differences of zenith distance of all of them are too small.

Correction to Assumed Colatitude, 1866.

| Star's Name, and Mode of Observation. | Num. of Obs. | Mean N.P.D. 1866, Jan. 1, uncorrected. | Num. of Obs. | Concluded N.P.D. on Assumed Colatitude. | Num. of Obs. | Algebraic Sum of Determinations. | Weight. | Product. |
|---|-----------------|---|-----------------|--|-----------------|--|---------|----------|
| Groomb. 1119 | D 2 | ° ' " 0 59 16.73 | 2 | " 16.73 | | " | | " |
| S.P. | D 1 | -0 59 15.26 | 1 | -15.26 | 3 | +1.47 | 7 | + 10.29 |
| Polaris | D 20 | 1 24 20.61 | 22 | 20.50 | | | | |
| R | 2 | 19.39 | | | 42 | +3.55 | 105 | +372.75 |
| S.P. | D 20 | -1 24 16.95 | 20 | -16.95 | | | | |
| Ceph. 51 (Hev.) | D 2 | 2 45 23.98 | 2 | 23.98 | | | | |
| S.P. | D 2 | -2 45 23.39 | 2 | -23.39 | 4 | +0.59 | 10 | + 5.90 |
| Radcliffe 3798 | D 1 | 3 1 52.32 | 1 | 52.32 | | | | |
| S.P. | D 1 | -3 1 50.95 | 1 | -50.95 | 2 | +1.37 | 5 | + 6.85 |
| Groomb. 1004 | D 3 | 3 14 20.07 | 3 | 20.07 | | | | |
| S.P. | D 2 | -3 14 18.86 | 2 | -18.86 | 5 | +1.21 | 12 | + 14.52 |
| δ Ursæ Min. | D 3 | 3 23 45.27 | 3 | 45.27 | | | | |
| S.P. | D 4 | -3 23 43.29 | 4 | -43.29 | 7 | +1.98 | 17 | + 33.66 |
| Radcliffe 4208 | D 1 | 3 27 51.19 | 1 | 51.19 | | | | |
| S.P. | D 1 | -3 27 48.79 | 1 | -48.79 | 2 | +2.40 | 5 | + 12.00 |
| Groomb. 2210 | D 3 | 3 29 57.63 | 3 | 57.63 | | | | |
| S.P. | D 1 | -3 29 55.16 | 1 | -55.16 | 4 | +2.47 | 8 | + 19.76 |
| Groomb. 3548 | D 4 | 3 31 25.75 | 4 | 25.75 | | | | |
| S.P. | D 1 | -3 31 23.19 | 1 | -23.19 | 5 | +2.56 | 8 | + 20.48 |
| Radcliffe 1272 | D 2 | 3 54 22.58 | 2 | 22.58 | | | | |
| S.P. | D 5 | -3 54 20.60 | 5 | -20.60 | 7 | +1.98 | 14 | + 27.72 |
| Radcliffe 3362 | D 1 | 3 58 47.47 | 1 | 47.47 | | | | |
| S.P. | D 1 | -3 58 44.61 | 1 | -44.61 | 2 | +2.86 | 5 | + 14.30 |
| Radcliffe 3075 | D 1 | 4 2 (32.37) | ... | ... .. | ... | ..... | ..... | ..... |
| S.P. | D 6 | -4 2 27.22 | ... | ..... |  |  |  |  |
| Radcliffe 1311 | D 4 | 4 13 35.98 | 4 | 35.98 | | | | |
| S.P. | D 3 | 4 13 34.03 | 3 | -34.03 | 7 | +1.95 | 17 | + 33.15 |

| Star's Name, and Mode of Observation. | Num. of Obs. | Mean N.P.D. 1866, Jan. 1, uncorrected. | Num. of Obs. | Concluded N.P.D. on Assumed Colatitude. | Num. of Obs. | Algebraic Sum of Determinations. | Weight. | Product. |
|---|--------------------|---|--------------------|--|--------------------|--|---------|----------|
| Radcliffe 3523 | D 2 | ° ' " 4 19 608 | 2 | " 608 | 3 | " +1'74 | 7 | +12'18 |
| S.P. | D 1 | -4 19 4'34 | 1 | - 4'34 | | | | |
| Radcliffe 6099 | D 1 | 4 19(16'23) | ... | ..... | ... | ..... | ..... | ..... |
| S.P. | D 2 | -4 19(10'25) | ... | ..... |  |  |  |  |
| Radcliffe 1377 | D 2 | 4 27 29'80 | 2 | 29'80 | 5 | +3'01 | 12 | +36'12 |
| S.P. | D 3 | -4 27 26'79 | 3 | -26'79 | | | | |
| Groomb. 1418 | D 3 | 4 28 55'29 | 3 | 55'29 | 4 | +2'64 | 8 | +21'12 |
| S.P. | D 1 | -4 28 52'65 | 1 | -52'65 | | | | |
| Groomb. 3820 | D 3 | 4 34 8'37 | 3 | 8'37 | 5 | +1'97 | 8 | +15'76 |
| S.P. | D 2 | -4 34 6'40 | 2 | - 6'40 | | | | |
| Radcliffe 3475 | D 4 | 4 44 17'74 | 4 | 17'74 | 6 | +1'11 | 13 | +14'43 |
| S.P. | D 2 | -4 44 16'63 | 2 | -16'63 | | | | |
| Groomb. 750 | D 4 | 4 48 13'05 | 4 | 13'05 | 9 | +0'62 | 22 | +13'64 |
| S.P. | D 5 | -4 48 12'43 | 5 | -12'43 | | | | |
| Groomb. 944 | D 3 | 4 52 55'97 | 3 | 55'97 | 7 | +3'21 | 17 | +54'57 |
| S.P. | D 4 | -4 52 52'76 | 4 | -52'76 | | | | |
| Groomb. 1620 | D 2 | 5 4 14'22 | 2 | 14'22 | 3 | +2'67 | 7 | +18'69 |
| S.P. | D 1 | -5 4 11'55 | 1 | -11'55 | | | | |
| Radcliffe 3685 | D 5 | 5 7 12'98 | 5 | 12'98 | 7 | +0'06 | 14 | + 0'84 |
| S.P. | D 2 | -5 7 12'92 | 2 | -12'92 | | | | |
| Radcliffe 6172 | D 1 | 5 16 31'05 | 1 | 31'05 | 2 | +4'45 | 5 | +22'25 |
| S.P. | D 1 | -5 16 26'60 | 1 | -26'60 | | | | |
| Radcliffe 3749 | D 4 | 5 16 45'19 | 4 | 45'19 | 10 | +1'62 | 24 | +38'88 |
| S.P. | D 6 | -5 16 43'57 | 6 | -43'57 | | | | |
| Groomb. 2218 | D 1 | 5 17 19'57 | 1 | 19'57 | 3 | +1'57 | 7 | +10'99 |
| S.P. | D 2 | -5 17 18'00 | 2 | -18'00 | | | | |
| Radcliffe 4894 | D 1 | 5 18 7'41 | 1 | 7'41 | 4 | +2'58 | 8 | +20'64 |
| S.P. | D 3 | -5 18 4'83 | 3 | - 4'83 | | | | |
| Groomb. 2213 | D 3 | 5 31 53'72 | 3 | 53'72 | 8 | +1'55 | 19 | +29'45 |
| S.P. | D 5 | -5 31 52'17 | 5 | -52'17 | | | | |

If z be the correction to the assumed colatitude, we shall have, by dividing the sum of the products in the last column of the table by the sum of the weights,

$$2z + 2''.29 = 0;$$

or $z = -1''.145.$

As this result is influenced greatly by Polaris, which, in this and the three preceding years, gives a correction for the colatitude at variance with that given by other stars of nearly the same N.P.D., it has been thought better to reject it. Using the other stars only, the correction to be applied to the N.P.D. is $-0''.91$, and the quantity actually applied (before the final revision of the work) has been $0''.85$. The value of the colatitude has been, however, so well determined that it is perfectly certain that the value used in the reductions for 1866, namely $38^{\circ} 14' 24''.3$, does not require a negative correction at all comparable with this; and we are led to the conclusion that the correction which has been applied to the circle-readings for flexure of circle, namely $+1''.60 \times \cos. \text{zenith-distance}$, is too large.

SECTION V.—*Catalogue of Concluded Mean Right Ascensions and Mean North Polar Distances for 1866, Jan. 1, of Stars observed in the Year 1866; with the Annual Precessions.*—Pages 93 to 128.

Some of the columns require no explanation, and notice will be taken only of those which require it.

The magnitudes of the stars which are set down are those which have been observed in the year 1866.

The Mean Right Ascensions for 1866, Jan. 1, are the means of those given in the *Separate Results for R.A.*, without any alteration, excluding those inclosed within brackets.

The precessions in R.A. for stars in the Nautical Almanac List are taken from that work, and therefore in general include proper motion. These precessions are marked with an asterisk. For stars included in the British Association Catalogue the geometrical precessions there given are set down, due regard being had to secular variation in bringing them up to 1866. The precessions for all other stars are computed with the constants given in the *Tabula Regiomontanae*.

The same explanation will serve for the precessions in N.P.D., excepting that none of them needed computing, since, the precession being a function of R.A. only, they are easily taken from the B.A.C.

The Mean North Polar Distances for 1866, Jan. 1, are the means of those given for each star in the section of *Separate Results for N.P.D.*, corrected by $-0''\cdot85$, as explained in the preceding Section.

The Notes at the end of the Catalogue are the result of a very careful scrutiny and comparison with the B. A. C. and other Catalogues, and serve to shew in the first place that Lacaille's places are in general greatly in error, and secondly that those of stars depending on the observations of Piazzi and Taylor conjointly, are also generally not trustworthy. A glance at the assumed proper motions will shew that the errors of the deduced places depend on erroneous values of the proper motion, especially in the case of the North Polar Distances. I have come to the conclusion that a re-computation of the greater number of the places given in the B.A.C., in which Taylor's observations have been used, is highly desirable.

In accordance with my practice in former years, I have thought it desirable to compare the Concluded Mean N. P. D.'s, as given in the Catalogue of Stars for 1866, with the Greenwich results as deduced from the "Greenwich Seven-Year Catalogue," for all stars common to the two Catalogues which have been observed a sufficient number of times. The following table gives the result of the comparison.

Comparison of the N.P.D.'s of Stars observed at the Radcliffe Observatory, Oxford, in 1866, with the N.P.D.'s of the Greenwich Seven-Year Catalogue.

| Star. | Num. of (Oxford Obs. | Greenwich Mean N.P.D. 1866, Jan. 1. | Oxford Seconds of N.P.D. | Excess of Greenwich. |
|----------------------------|-------------------------------|---|-----------------------------------|----------------------------|
| | | ° ' " | " | " |
| δ Ursæ Minoris S.P. | 4 | — 3 23 43·83 | — 44' 14 | + 0' 31 |
| Cephei 51 (Hev.) S.P. | 2 | — 2 45 24·04 | — 24' 24 | + 0' 20 |
| Polaris S.P. | 20 | — 1 24 17·82 | — 17' 80 | — 0' 02 |
| λ Ursæ Minoris. | 6 | 1 5 33·19 | 36' 93 | — 3' 74 |
| Polaris | 22 | 1 24 17·82 | 19' 65 | — 1' 83 |
| Cephei 51 (Hev.) | 2 | 2 45 24·04 | 23' 13 | + 0' 91 |
| 24 Ursæ Minoris | 5 | 3 1 4' 25 | 4' 06 | + 0' 19 |
| δ Ursæ Minoris | 3 | 3 23 43·83 | 44' 42 | — 0' 59 |
| ε Ursæ Minoris | 4 | 7 44 49·99 | 51' 59 | — 1' 60 |
| γ Cephei | 4 | 13 6 56·14 | 57' 22 | — 1' 08 |

| Star. | Num. of Oxford Obs. | Greenwich Mean N.P.D. 1866, Jan. 1. | Oxford Seconds of N.P.D. | Excess of Greenwich. |
|----------------------------|------------------------------|---|-----------------------------------|----------------------------|
| | | ° ' " | " | " |
| β Ursæ Minoris | 8 | 15 17 49.15 | 50.30 | — 1.15 |
| η Draconis..... | 10 | 28 10 55.22 | 56.40 | — 1.18 |
| γ Draconis..... | 3 | 38 29 39.73 | 40.93 | — 1.20 |
| η Ursæ Majoris | 4 | 40 1 1.59 | 3.25 | — 1.66 |
| α Lyræ | 14 | 51 20 22.19 | 21.61 | + 0.58 |
| θ Aurigæ | 6 | 52 48 1.03 | 1.53 | — 0.50 |
| β Lyræ | 5 | 56 47 27.91 | 27.41 | + 0.50 |
| ϵ Aurigæ..... | 5 | 57 2 58.05 | 57.56 | + 0.49 |
| Castor | 3 | 57 49 15.05 | 13.53 | + 1.52 |
| ξ Herculis | 15 | 58 9 9.72 | 10.02 | — 0.30 |
| ϵ Herculis | 6 | 58 52 28.42 | 26.70 | + 1.72 |
| ρ Boötis..... | 5 | 59 2 20.46 | 19.71 | + 0.75 |
| β Tauri | 9 | 61 30 33.08 | 32.45 | + 0.63 |
| α Andromedæ | 6 | 61 38 58.33 | 58.06 | + 0.27 |
| δ Cancræ..... | 4 | 61 49 58.11 | 56.92 | + 1.19 |
| μ Herculis..... | 4 | 62 11 56.68 | 55.22 | + 1.46 |
| ϵ Boötis..... | 17 | 62 21 33.61 | 34.07 | — 0.46 |
| 32 Vulpeculæ..... | 5 | 62 27 2.11 | 1.76 | + 0.35 |
| α Coronæ | 12 | 62 49 57.18 | 57.65 | — 0.47 |
| 89 Herculis | 5 | 63 55 35.96 | 35.87 | + 0.09 |
| 16 Pegasi | 4 | 64 42 15.43 | 15.09 | + 0.34 |
| ϵ Pegasi | 5 | 65 18 30.05 | 29.82 | + 0.23 |
| μ Pegasi | 5 | 66 6 19.36 | 20.22 | — 0.86 |
| α Arietis..... | 7 | 67 10 22.10 | 20.94 | + 1.16 |
| μ Geminorum | 6 | 67 25 15.56 | 13.11 | + 2.45 |
| η Geminorum | 5 | 67 27 27.77 | 25.42 | + 2.35 |
| δ Leonis..... | 4 | 68 44 33.79 | 32.58 | + 1.21 |
| η Cancræ..... | 3 | 69 6 21.86 | 20.99 | + 0.87 |
| γ^1 Leonis | 3 | 69 28 54.88 | 54.78 | + 0.10 |
| β Arietis | 7 | 69 50 54.35 | 53.73 | + 0.62 |
| Arcturus | 10 | 70 7 6.68 | 7.78 | — 1.10 |
| γ Herculis | 12 | 70 31 48.62 | 46.91 | + 1.71 |
| ω^1 Tauri | 4 | 70 44 52.49 | 51.20 | + 1.29 |
| δ Arietis..... | 4 | 70 46 56.50 | 54.73 | + 1.77 |
| η Boötis..... | 5 | 70 55 45.79 | 46.25 | — 0.46 |

| Star. | Num. of Oxford Obs. | Greenwich Mean N.P.D. 1866, Jan. 1. | Oxford Seconds of N.P.D. | Excess of Greenwich. |
|---------------------------|------------------------------|---|-----------------------------------|----------------------------|
| | | ° ' " | " | " |
| ε Tauri | 11 | 71 7 10'99 | 10'05 | + 0'94 |
| γ Geminorum | 6 | 73 29 22'02 | 21'64 | + 0'38 |
| 51 Geminorum | 6 | 73 36 59'60 | 58'79 | + 0'81 |
| Aldebaran | 9 | 73 45 46'89 | 46'04 | + 0'85 |
| β Leonis | 6 | 74 40 44'50 | 43'36 | + 1'14 |
| γ Tauri | 10 | 74 41 55'54 | 54'96 | + 0'58 |
| ν Orionis | 5 | 75 13 6'91 | 5'09 | + 1'82 |
| η Piscium | 4 | 75 20 45'69 | 44'72 | + 0'97 |
| α Herculis | 6 | 75 27 16'95 | 14'92 | + 2'03 |
| σ Arietis | 7 | 75 28 19'66 | 17'29 | + 2'37 |
| γ Pegasi..... | 2 | 75 33 42'19 | 42'07 | + 0'12 |
| ζ Aquilæ | 7 | 76 19 60'53 | 58'48 | + 2'05 |
| α Ophiuchi | 11 | 77 20 23'96 | 23'28 | + 0'68 |
| Regulus | 3 | 77 22 45'02 | 43'79 | + 1'23 |
| f Tauri | 4 | 77 31 29'50 | 27'75 | + 1'75 |
| ε Virginis | 5 | 78 19 11'85 | 10'60 | + 1'25 |
| ω Aquilæ | 5 | 78 38 38'48 | 36'11 | + 2'37 |
| ε Delphini | 4 | 79 8 61'11 | 59'17 | + 1'94 |
| γ Aquilæ | 4 | 79 42 40'41 | 38'41 | + 2'00 |
| ζ Pegasi..... | 3 | 79 52 2'68 | 0'75 | + 1'93 |
| ρ Leonis | 3 | 80 0 18'40 | 15'62 | + 2'78 |
| κ Ophiuchi | 4 | 80 24 51'47 | 48'62 | + 2'85 |
| γ 2 Ophiuchi | 7 | 80 27 10'53 | 7'90 | + 2'63 |
| π Leonis | 4 | 81 18 51'65 | 49'38 | + 2'27 |
| β Canis Minoris | 4 | 81 26 36'42 | 35'03 | + 1'39 |
| α Aquilæ | 11 | 81 28 60'30 | 58'74 | + 1'56 |
| ξ ² Ceti | 5 | 82 8 32'51 | 30'98 | + 1'53 |
| α Orionis | 9 | 82 37 15'41 | 13'60 | + 1'81 |
| π Virginis | 7 | 82 38 18'66 | 16'51 | + 2'15 |
| ε Hydræ..... | 3 | 83 5 30'20 | 28'65 | + 1'55 |
| α Serpentis | 7 | 83 9 2'72 | 1'25 | + 1'47 |
| ω Piscium | 4 | 83 52 43'07 | 43'11 | — 0'04 |
| Procyon..... | 6 | 84 26 3'25 | 3'11 | + 0'14 |
| ι Piscium | 7 | 85 5 59'45 | 58'13 | + 1'32 |
| ν Piscium | 7 | 85 11 30'14 | 28'78 | + 1'36 |

| Star. | Num. of Oxford Obs. | Greenwich Mean N.P.D. 1866, Jan. 1. | Oxford Seconds of N.P.D. | Excess of Greenwich. |
|-----------------------------|------------------------------|---|-----------------------------------|----------------------------|
| | | ° ' " | " | " |
| β Ophiuchi | 4 | 85 22 26.87 | 25.99 | + 0.88 |
| d Leonis..... | 3 | 85 39 49.73 | 47.86 | + 1.87 |
| 35 Virginis..... | 9 | 85 41 42.12 | 41.08 | + 1.04 |
| 34 Sextantis | 5 | 85 43 3.74 | 2.26 | + 1.48 |
| σ Ophiuchi | 4 | 85 44 25.83 | 24.67 | + 1.16 |
| α Ceti..... | 4 | 86 26 16.53 | 16.49 | + 0.04 |
| γ Ceti..... | 6 | 87 19 51.19 | 49.43 | + 1.76 |
| γ Piscium | 5 | 87 26 58.71 | 57.88 | + 0.83 |
| τ Virginis | 4 | 87 48 20.93 | 18.60 | + 2.33 |
| ζ Virginis | 5 | 89 54 34.87 | 34.12 | + 0.75 |
| η Virginis | 4 | 89 55 18.72 | 17.91 | + 0.81 |
| v Leonis..... | 5 | 90 5 3.18 | 1.94 | + 1.24 |
| δ Orionis | 3 | 90 24 3.85 | 3.40 | + 0.45 |
| γ Aquarii | 3 | 92 3 40.75 | 40.76 | - 0.01 |
| η Serpentis | 6 | 92 55 51.36 | 50.02 | + 1.34 |
| δ Ophiuchi | 5 | 93 20 48.28 | 46.87 | + 1.41 |
| μ Eridani | 6 | 93 30 9.82 | 9.55 | + 0.27 |
| 12 Ceti | 7 | 94 41 53.29 | 51.71 | + 1.58 |
| β Aquarii | 5 | 96 9 32.74 | 32.85 | - 0.11 |
| 67 Ceti | 4 | 97 2 28.21 | 27.64 | + 0.57 |
| m Virginis..... | 5 | 98 1 32.32 | 31.81 | + 0.51 |
| Rigel | 9 | 98 21 32.84 | 32.17 | + 0.67 |
| ξ Aquarii | 5 | 98 27 13.09 | 13.72 | - 0.63 |
| ι Ceti | 8 | 99 34 1.42 | 1.06 | + 0.36 |
| κ Virginis | 6 | 99 38 55.36 | 52.72 | + 2.64 |
| κ Orionis | 4 | 99 43 10.91 | 10.35 | + 0.56 |
| ϵ Eridani | 4 | 99 54 50.16 | 48.45 | + 1.71 |
| ϵ Aquarii | 7 | 99 59 3.09 | 2.35 | + 0.74 |
| δ Eridani | 3 | 100 13 8.59 | 7.68 | + 0.91 |
| ζ Ophiuchi..... | 4 | 100 17 34.55 | 32.84 | + 1.71 |
| Spica | 3 | 100 27 39.24 | 37.93 | + 1.31 |
| ξ^2 Libræ | 2 | 100 52 1.35 | 0.13 | + 1.22 |
| θ Canis Majoris..... | 8 | 101 52 23.61 | 22.62 | + 0.99 |
| α^2 Capricorni..... | 5 | 102 57 28.27 | 26.71 | + 1.56 |
| γ Eridani | 6 | 103 53 31.20 | 29.76 | + 1.44 |

| Star. | No. of Oxford Obs. | Greenwich Mean N.P.D. 1866, Jan 1. | | | Oxford Seconds of N.P.D. | Excess of Greenwich. |
|-----------------------------|-----------------------------|--|----|-------|-----------------------------------|----------------------------|
| | | ° | ' | " | " | " |
| δ Crateris | 3 | 104 | 3 | 13'60 | 13'11 | + 0'49 |
| α Libræ | 4 | 105 | 28 | 58'91 | 56'91 | + 2'00 |
| η Ophiuchi | 5 | 105 | 33 | 21'47 | 19'39 | + 2'08 |
| δ Corvi | 5 | 105 | 46 | 8'89 | 7'00 | + 1'89 |
| Sirius | 15 | 106 | 32 | 4'07 | 4'07 | 0'00 |
| ι Capricorni | 4 | 107 | 24 | 11'94 | 9'29 | + 2'65 |
| θ Capricorni | 4 | 107 | 45 | 48'00 | 46'75 | + 1'25 |
| β Canis Majoris..... | 5 | 107 | 53 | 31'42 | 28'80 | + 2'62 |
| α Leporis | 3 | 107 | 55 | 14'03 | 11'66 | + 2'37 |
| β Ceti | 5 | 108 | 43 | 21'77 | 20'91 | + 0'86 |
| β ¹ Scorpii..... | 5 | 109 | 26 | 9'87 | 6'53 | + 3'34 |
| μ Sagittarii | 6 | 111 | 5 | 26'67 | 23'63 | + 3'04 |
| ε Leporis | 3 | 112 | 33 | 12'67 | 9'89 | + 2'78 |
| β Corvi | 2 | 112 | 39 | 19'22 | 17'43 | + 1'79 |
| 15 Argûs | 5 | 113 | 55 | 12'04 | 9'85 | + 2'19 |
| Antares | 4 | 116 | 7 | 53'60 | 51'12 | + 2'48 |
| ε Sagittarii..... | 3 | 118 | 4 | 46'53 | 45'97 | + 0'56 |
| δ Sculptoris | 3 | 118 | 52 | 15'81 | 14'55 | + 1'26 |

Dividing the stars above into groups at convenient intervals, and taking the means, we obtain the following table.

Mean Results of the Comparison with the Greenwich Seven-Year Catalogue.

| No. of Group. | Extent of Group. | Mean N.P.D. | Mean Zenith Distance. | Mean Excess of Greenwich. | Weight. |
|---------------------|--|----------------|-----------------------------|---------------------------------|---------|
| | | ° ′ | ° ′ | " " | |
| 1 | δ Ursæ Minoris S.P. to δ Ursæ Minoris | 0 20 | — 37 54 | — 0·94 | 64 |
| 2 | ε Ursæ Minoris to β Ursæ Minoris | 12 52 | — 25 22 | — 1·25 | 16 |
| 3 | η Draconis..... | 28 11 | — 10 3 | — 1·18 | 10 |
| 4 | γ Draconis to θ Aurigæ | 48 33 | + 10 19 | — 0·19 | 27 |
| 5 | β Lyre to μ Pegasi..... | 61 16 | 23 2 | + 0·24 | 115 |
| 6 | α Arietis to Aldebaran | 70 26 | 32 12 | + 0·89 | 102 |
| 7 | β Leonis to γ2 Ophiuchi | 77 15 | 39 1 | + 1·65 | 100 |
| 8 | π Leonis to γ Piscium | 84 9 | 45 55 | + 1·30 | 114 |
| 9 | τ Virginis to ξ Aquarii | 93 59 | 55 45 | + 0·77 | 76 |
| 10 | ι Ceti to δ Crateris | 101 0 | 62 46 | + 1·19 | 65 |
| 11 | α Libræ to β ¹ Scorpii..... | 107 7 | 68 53 | + 1·54 | 55 |
| 12 | μ Sagittarii to δ Sculptoris..... | 114 24 | + 76 10 | + 2·17 | 26 |

The agreement with the Greenwich Catalogue is not by any means so satisfactory as in either of the two preceding years. In the preceding year the correction applied for flexure of circle was +0·72 cos. zenith-distance, and if this had been applied during the present year the resulting N.P.D.'s would apparently have presented a rather better agreement after the corresponding correction had been applied for colatitude. The mean excesses of Greenwich would in fact be very approximately ;

| | | | |
|-------------------|---------|-------------------|---------|
| For group 1 | — 0·94. | For Group 7 | + 1·63. |
| " 2 | — 1·22. | " 8 | + 1·22. |
| " 3 | — 1·01. | " 9 | + 0·42. |
| " 4 | — 0·02. | " 10 | + 0·93. |
| " 5 | + 0·33. | " 11 | + 1·15. |
| " 6 | + 0·94. | " 12 | + 1·69. |

Indeed, the only correction which could harmonize the observations, is one depending on the sine of the zenith-distance, yet the general agreement between the zenith-points for north stars and south stars would seem to shew that such a correction must be insignificant. For the present we must leave the results as they are given, trusting that ultimately, when the results of several years are discussed for the formation of a Catalogue of Stars, information may be gained sufficient for the removal of the difficulty.

SECTION VI.—*Horizontal and Vertical Diameters, and Right Ascensions and North Polar Distances of the Sun, Moon, and Mercury (the N.P.D.'s corrected for Error of Colatitude, and for Flexure of the Telescope and the Circle), compared with the Nautical Almanac.*—Pages 129 to 138.

Diameters.—The “Observed Duration of Transit” of the Sun’s Diameter is obtained by taking the differences of the times of transit of the first and the second limb, and the “Seconds of Nautical Almanac” are obtained from the Nautical Almanac by doubling the “Sidereal Time of the Semidiameter passing the Meridian” given in that work. It is found that the mean of 86 values of the error of the Nautical Almanac diameter is $+0^{\circ}.13$. For cases in which only one limb has been observed, the Nautical Almanac value of the “Time of Transit of Semidiameter” has been adopted without alteration.

The same explanation will suffice for the vertical diameters of the sun, except that these are corrected for refraction. The mean of 88 values of the error of the Nautical Almanac diameter is $+1^{\circ}.25$.

For the moon a correction is applied if necessary to the transit of that limb which is defective on account of imperfect illumination (computed in the usual way), and the difference of the transits of the two limbs is then compared with that found by doubling the value given in the Nautical Almanac in the Section of Moon-Culminating Stars, corrected if necessary for difference of longitude. The mean of 5 values of the error of the tabular duration of passage of diameter is $-0^{\circ}.06$. The error of the tabular vertical diameter as deduced from 13 observations is $-0^{\circ}.41$. The comparisons of the observed and tabular values of the diameters of Mercury need no explanation, excepting that they have been corrected for defect of illumination.

Right Ascensions and North Polar Distances.—The Mean Solar Times are computed by means of the table given in Warnstorff’s edition of Schumacher’s *Hülfsstafeln*. The sidereal time at mean noon given in the Nautical Almanac is increased by $0^{\circ}.83$ for the assumed west longitude of the Radcliffe Observatory, namely $5^{\text{m}} 2^{\circ}.6$; and the difference between this and the right ascension of any object is taken, and converted into the corresponding interval of mean solar time by the numbers in the *Hülfsstafeln*. For cases wherein the N.P.D. of an object has been observed without a corresponding

observation of R.A., the right ascension used for computing the mean solar time is that given in the Nautical Almanac, corrected, if it appears necessary, by means of the neighbouring observations.

The right ascensions of the sun's centre are generally the means of those deduced from the observations of the two limbs; if however one limb only has been observed, the duration of transit of semidiameter is taken without alteration from the Nautical Almanac. The tabular R.A.'s are taken, corrected for longitude, from the Nautical Almanac.

In general both limbs of the sun have been observed in N.P.D., and the mean of the N.P.D.'s corrected for error of colatitude, &c., is taken for the true observed N.P.D. When one limb only has been observed, the semidiameter of the Nautical Almanac is applied without correction. The tabular N.P.D.'s are taken, corrected for longitude, from the Nautical Almanac.

The observed R.A.'s of the Moon's centre are derived from the observations of the limb by application of the Nautical Almanac "Duration of Passage of Semidiameter." The tabular R.A. is found by applying to the R.A. of the limb given in the section of *Moon-Culminating Stars* in the Nautical Almanac, corrected for longitude, the duration of passage of semidiameter given in the same section, similarly corrected if necessary.

The observed N.P.D.'s of the Moon's centre, deduced from those of the limb observed, by the application of the Nautical Almanac semidiameter, are corrected for assumed error of colatitude and for flexure of the telescope and circle. The tabular N.P.D.'s are taken from the section of *Moon-Culminating Stars*, corrected for longitude.

For Mercury, the R.A.'s and N.P.D.'s are corrected for flexure and for error of colatitude, &c. The tabular R.A.'s and N.P.D.'s, corrected for longitude, are taken from the Nautical Almanac.

SECTION VII.—*Measures of Distance and Angle of Position of the Components of Double Stars.*—Pages 139 to 152.

A full description of the Heliometer will be found in vol. XI. of the *Radcliffe Observations*, but it will be desirable to give such information as is necessary for the perfect understanding and appreciation of the observations of this section.

The divided object-glass is 7.5 inches in diameter, and its focal length is nearly 10.5 feet. The segments are mounted on curved

brass plates, 22 inches long by 4.5 inches broad; both exactly equal in size, figure, and weight. When separated, they describe a portion of the circumference of a circle of which the radius is the focal length. (See vol. XI. p. xiv.) The motion is produced by screws furnished with graduated heads, which can be acted on by the observer at the eye-end of the telescope by means of jointed rods carried for the greater part of their lengths inside the telescope-tube. There are two scales for each half-glass, formed of slips of silver; one on the outside of the brass plates, and one inside the telescope-tube, near the object-glass, the position of the latter, in relation to a fixed index, being read off at the eye-end of the telescope by long micrometer-microscopes. The requisite illumination is obtained from thin platinum wires heated by a stream from a galvanic battery. The interior scale is alone employed. The scale belonging to the half-object-glass E (using Mr. Johnson's designation) has been exclusively used. There are on it 280 divisions, the interval between each two consecutive ones being about $\frac{1}{36}$ of an inch; and, as the division 140 corresponds with the middle of the scale, it has been used generally as the approximate zero for measurement.

The tube of the telescope is of hammered brass. Its diameter at the end nearest the object-glass is 13 inches, at the other extremity 9.2 inches. It is supported by a strong cradle of brass, 5 feet long, which terminates at each end with carefully-turned steel collars, on which the telescope is made to rotate, so as to give different angles of position to the line of separation of the halves of the object-glass.

The position-circle is 22.7 inches in diameter, and is placed at the end of the cradle nearest to the observer. It is divided to 10', and is read to single minutes by means of two opposite verniers, of which one only is in general use.

The declination and polar axes are each 43 inches in length from pivot to pivot; and the circles are each 34 inches in diameter. The declination circle is divided into spaces of 4', and is read by two opposite microscopes, one revolution being approximately equivalent to 2'. The convenience of this arrangement is, that the sum of readings of the microscopes gives (after accounting for the runs) the minutes and seconds to be added to the pointer-reading, without further reduction. The hour circle is divided to single minutes of time, and is read by two opposite microscopes, one revolution of each being approximately equivalent to 20 seconds of time.

By observations made in former years it appeared that the elevation was too small by nearly two minutes of arc. I succeeded in nearly correcting this error on Sept. 26, 1865, and the position of

the axis was, in 1866, proved to be sensibly correct. The following is an abstract of the observations and an account of the operation.

Before proceeding to reduce the error of elevation of the axis I made the following observation to determine its actual amount.

1865, Sept. 25. Observed N.P.D. of ϵ Pegasi (telescope E.) at $21^{\text{h}} 32^{\text{m}}$ sidereal, $80^{\circ} 44' 59''.2$.

Observed N.P.D. (telescope W.) at $21^{\text{h}} 44^{\text{m}}$ sidereal, $80^{\circ} 45' 54''.6$.

| | |
|----------------------|----------------------------|
| The mean of these is | $80^{\circ} 45' 26''.9$ |
| Refraction | $+ \quad \quad 53'.5$ |
| Instrumental N.P.D. | $80^{\circ} 46' 20''.4$ |
| N.P.D. from N.A. | $80^{\circ} 44' 4''.2$ |
| Error of elevation | $= \quad \quad 2' 16''.2,$ |

by which the elevation is too small.

I had previously obtained the value of the screw of the declination-micrometer by separating the images of a star (in the direction of the meridian) by an amount corresponding to certain readings of the scale, and found the value of a revolution to be $20''.502$.

Afterwards, on Sept. 26, I placed the moveable wire of the micrometer (placed horizontal) at a distance from the fixed wire approximately equal to the error of elevation, and, placing the image of δ Aquilæ (running well along the wire) on the upper of the two wires, an assistant watched the star, while I turned the elevating-screw of the axis till the image reached the lower wire.

The following observation was made on the same evening to test the accuracy of the elevation of the axis.

Observed N.P.D. of 32 Vulpeculæ (telescope W.) at $20^{\text{h}} 48^{\text{m}}$ sidereal, $62^{\circ} 27' 3''.9$.

Observed N.P.D. (telescope E.) at $21^{\text{h}} 5^{\text{m}}$ sidereal, $62^{\circ} 25' 58''.6$.

| | |
|----------------------|-------------------------|
| The mean of these is | $62^{\circ} 26' 31''.3$ |
| Refraction | $+ \quad \quad 26''.0$ |
| Instrumental N.P.D. | $62^{\circ} 26' 57''.3$ |
| N.P.D. from N.A. | $62^{\circ} 26' 43''.5$ |
| Error of elevation | $= \quad \quad 13''.8.$ |

The following observations, made on Feb. 13, 1866, will shew that at that time the elevation of the polar axis was very nearly correct.

Observed N.P.D. of δ Orionis (telescope E.) at $5^{\text{h}} 15^{\text{m}}$ sidereal, $90^{\circ} 23' 59''.5$.

Observed N.P.D. (telescope W.) at $5^{\text{h}} 27^{\text{m}}$ sidereal, $90^{\circ} 21' 59''.1$.

Adding to the mean of those, the refraction $+ 1' 16''.0$, the true

observed N.P.D. is $90^{\circ} 24' 15''.3$, and the seconds of N.P.D. of the Nautical Almanac being $19''.4$, the error of elevation is $4''.1$.

Measures of Double Stars, &c.—The description of the mounting of the object-glass of the Heliometer, and of the mode of reading its scale, will enable any person easily to follow the columns of the printed observations of double stars and planets. It has been the practice to read the scale for measures of distance of a double star three times in one position of the moveable image with regard to the fixed image (the four images being brought into line at equal distances), and then, after reading the position circle, to read the scale for three separate measures with the moveable image on the other side of the fixed image, after turning the telescope so as to bring the objects accurately into line again. The position-circle is then read a second time. The differences between the mean of all the readings for a star (which is generally taken for the zero) and the separate readings, give six separate measures of distance, which are set down in the sixth column of the printed observations.

The value in arc of one division of the scale which has been used in the reduction of the observations, namely $29''.424$, is the same as that used in preceding years; and its correctness is proved by the observations made in the autumn of 1865, and printed in the preceding volume of the Radcliffe Observations.

On September 24 occurred a very heavy fall of rain, some of which insinuated itself between the two uppermost shutters of the Dome, and, trickling down the tube of the telescope, got access through the screw-openings to the object-glass between the crown and the flint glasses, though the object-glass was turned downwards. The object-glass had been previously becoming very unsatisfactory on account of the vapour and dirt which were accumulating between the glasses near the section, and it now became absolutely necessary to clean them.

The frame of the object-glass was taken off on October 8, and remained unmounted during the remainder of the year 1866, owing to want of information concerning the measures necessary to be used for the separation of the glasses. In February of the following year, however, I obtained from Messrs. Merz of Munich the necessary information, and separated them with great ease by keeping them for several hours immersed in water.

Having then, with care, put them together again by the use of gum-arabic applied to the same connecting pieces of tin-foil previously used, I remounted the object-glass, which has been ever since in a very satisfactory condition.

Partly owing to the circumstance of the instrument being so unexpectedly put out of use, and partly through inadvertence, no observations were made during the year for zero of position. In 1867, however, the mean of fourteen observations gave $21^{\circ} 33'$ for the zero, and therefore the value $21^{\circ} 32'$ which was used in 1865 was continued throughout the year 1866. I had previously satisfied myself that the zero is subject to very small change.

The *Catalogue of the Distances and Angles of Position of the Double Stars* requires very little explanation. The stars are simply arranged in order of right ascension, and the approximate R.A.'s and N.P.D.'s are given for the epoch 1865 to facilitate reference to other Catalogues. The stars observed during the year 1866 are as before chiefly the *Lucidæ* given in Struve's *Mensuræ Micrometricæ*, classes iii. to viii. inclusive, the object of the observations being to determine whether they have in general experienced orbital motion since the epoch of Struve's observations; and, in addition, the stars, having large angular distances of the components, contained in Struve's 1st Appendix.

SECTION VIII.—*Observations of the beginning of the Solar Eclipse of October 8, 1866; of Occultations of Stars by the Moon; and of the Meteoric Shower of November 13-14, 1866.*—Pages 153 and 163.

Solar Eclipse.—The time of the beginning of the Eclipse of October 8 was observed by Mr. Lucas on the elevated terrace of the Observatory, with the 42-inch achromatic telescope, by means of a solar chronometer which was compared at the time with the transit clock. For the reduction of the observations, all the lunar elements for the times of observation, namely the Geocentric R.A. and N.P.D. of the moon's centre and her equatorial parallax and semidiameter, were interpolated with second differences from the data of the Nautical Almanac; and the solar elements for the same time were computed as far as necessary, with second differences from the daily R.A. and N.P.D., &c., given in the same work.

The parallax of the moon's centre in hour-angle and north polar distance were then computed by the formulæ given in my *Astronomy*, pages 344 and 345,—namely

$$\tan \delta h = \rho \frac{\frac{\sin P \cos \phi' \sin h}{\sin \Delta}}{1 - \rho \frac{\sin P \cos \phi' \cos h}{\sin \Delta}}$$

and
$$\tan \delta \Delta = \frac{Q \cdot \sin (\Delta - \psi)}{1 - Q \cos (\Delta - \psi)},$$

where Δ is the geocentric N.P.D. of the moon's centre;

$$\tan \psi = \cot \phi' \frac{\cos \left(h + \frac{\delta h}{2} \right)}{\cos \frac{\delta h}{2}}, \quad (\phi' \text{ being the geocentric latitude of the Observatory,})$$

and

$$Q = \rho \frac{\sin P \sin \phi'}{\cos \psi},$$

whence the apparent R.A. and N.P.D. (Δ') of the moon's centre will be obtained.

The augmented semidiameter of the moon is calculated from the formula

$$\sin s' = \frac{\sin \Delta'}{\sin \Delta} \cdot \frac{\sin h'}{\sin h} \cdot \sin s,$$

where the unaccented quantities are geocentric, and the others are affected with parallax.

For the sun, the effects of parallax in hour-angle and N.P.D. have been computed from the usual approximate formulæ employed in former years for extrameridional observations of planets and comets. The remainder of the investigation is almost precisely similar to that which will be explained in the treatment of the reduction of "Occultations of Stars by the Moon."

Occultations of Stars by the Moon.

The instruments with which the observations were made are mentioned in each instance, and the clock or chronometer was compared with the transit-clock at the time of each observation or very near to it, so that no doubt exists as to the accuracy of the Oxford Mean Solar Times.

All the lunar and solar elements for the time of observation of an occultation, namely the Geocentric R.A. and N.P.D. of the moon's centre (A and D), and the horizontal equatorial parallax and semidiameter (P and S), were interpolated with second differences from the data of the Nautical Almanac, and Airy's correction was applied to produce the parallax (P') applicable to the point on the limb at which the occultation took place.

Then, if the R.A. (in arc) and the N.P.D. of the star, which are the same, for the instant of occultation, as those for the apparent position of the point on the limb, be denoted by a' and Δ' , and the apparent hour angle by h' , the geocentric values being a , Δ , and h , the following formula (see my *Astronomy*, page 346) will express very approximately the value of $h' - h$, or of δh ,

$$\sin \delta h = Q' \cdot \frac{\sin h'}{\sin \Delta'} \cdot \frac{1}{1 - Q' \cos \Delta' (1 - \cot \phi' \cot \Delta' \cos h')},$$

where $Q' = \rho \sin P' \cos \phi'$, (ϕ' being the geocentric latitude),

and $Q'' = \rho \sin P' \sin \phi'$.

In deducing this formula from the correct equation,

$$\begin{aligned} \sin \delta h &= Q' \frac{\sin h'}{\sin \Delta'}, \\ &= Q' \frac{\sin h'}{\sin (\Delta' - \delta \Delta)}, \\ &= Q' \cdot \frac{\sin h'}{\sin \Delta' \cos (\delta \Delta) - \cos \Delta' \sin (\delta \Delta)}; \end{aligned}$$

by the substitution for $\delta \Delta$ of the well-known value,

$$\sin \delta \Delta = \rho \sin P' \left\{ \sin \phi' \sin \Delta' - \cos \phi' \cos \Delta' \cdot \frac{\cos \left(h' - \frac{\delta h}{2} \right)}{\cos \frac{\delta h}{2}} \right\},$$

it has been assumed, first, that $\cos h'$ may be substituted without

error for $\frac{\cos \left(h' - \frac{\delta h}{2} \right)}{\cos \frac{\delta h}{2}}$, and secondly, that unity may be used, instead

of $1 - \frac{(\delta \Delta)^2}{2}$, for $\cos (\delta \Delta)$ in the expansion of $\sin (\Delta' - \delta \Delta)$. The sum of the errors arising from neglected quantities will amount at the maximum to rather more than $0''.3$. But, that absolute accuracy may be arrived at, I have tabulated the effects.

It will be found by expansion that the error of the substitution of

$$\begin{aligned} \cos h' \text{ for } \frac{\cos \left(h' - \frac{\delta h}{2} \right)}{\cos \frac{\delta h}{2}} \text{ will be} \\ - [9.0498] \times \sin^3 h' \cot^2 \Delta' \operatorname{cosec} \Delta', \end{aligned}$$

and the following table gives the values of the correction to be applied to the computed value of δh :—

| Δ' | h' | | | | | | | |
|-----------|------------|------------|------------|------------|------------|------------|------------|------------|
| | 20° | 30° | 40° | 50° | 60° | 70° | 80° | 90° |
| 0 | " | " | " | " | " | " | " | " |
| 60 | -0.002 | -0.005 | -0.011 | -0.019 | -0.028 | -0.036 | -0.041 | -0.043 |
| 65 | .001 | .003 | .007 | .012 | .017 | .022 | .026 | .027 |
| 70 | .001 | .002 | .004 | .007 | .010 | .013 | .015 | .016 |
| 75 | .000 | .001 | .002 | .004 | .005 | .007 | .008 | .008 |
| 80 | .000 | .000 | .001 | .002 | .002 | .003 | .003 | .004 |
| 85 | .000 | .000 | .000 | .000 | .001 | .001 | .001 | .001 |

The effect of the omission of the second term in the expansion of $\text{Cos } (\delta \Delta')$ is $+\frac{1}{2} \delta h (\delta \Delta)^2 \text{Sin}^2 1''$, to be applied to the computed values of δh . It is tabulated as follows:—

| $\delta \Delta$ | δh | | | | | | |
|-----------------|------------|--------|--------|--------|--------|--------|--------|
| | 5' | 10' | 15' | 20' | 25' | 30' | 35' |
| ' | " | " | " | " | " | " | " |
| 25 | +0.008 | +0.016 | +0.024 | +0.032 | +0.040 | +0.048 | +0.056 |
| 30 | .011 | .023 | .035 | .046 | .057 | .068 | .080 |
| 35 | .016 | .031 | .046 | .062 | .078 | .094 | .109 |
| 40 | .020 | .040 | .060 | .081 | .101 | .121 | .142 |
| 45 | .026 | .051 | .077 | .103 | .128 | .154 | .180 |
| 50 | .032 | .064 | .096 | .127 | .159 | .191 | .222 |
| 55 | .038 | .077 | .116 | .154 | .192 | .230 | .269 |
| 60 | .046 | .092 | .138 | .183 | .229 | .275 | .320 |

I have, however, done away with the necessity for the use of the first of these tables by computing, for small intervals of h' and Δ' , (for the mean value of P ;) very approximate values of δh , by which means the value of $h' - \frac{\delta h}{2}$ can be obtained immediately with sufficient accuracy.

δh having been computed, $h = h' - \delta h$ is found, as also a , the R.A. of the geocentric position of the corresponding point, by means of the right ascension of the zenith.

Then $\delta \Delta$ is computed by the formula :

$$\text{Sin } \delta \Delta = \rho \text{ Sin } P' \text{ Sin } \phi' \frac{\text{Sin } (\Delta' - \psi)}{\text{Cos } \psi},$$

$$\text{where } \text{Tan } \psi = \text{Cot } \phi' \frac{\text{Cos } \left(h + \frac{\delta h}{2} \right)}{\text{Cos } \frac{\delta h}{2}};$$

and hence $\Delta = \Delta' - \delta \Delta$ is known.

If then a and d be the differences of geocentric R. A. and N. P. D. of the moon's centre and the corresponding point,

$$a = A - a \text{ and } d = D - \Delta,$$

from which the geocentric distance of the point from the centre of the moon is easily found; and is equated to the moon's geocentric semidiameter increased by $\frac{n}{1000}$ part.

For the variation of the parallax in the time t , we have, for west hour-angles, if the change of parallax be applied to the position of the corresponding point,

$$d(\delta \alpha) = -d(\delta h) = 15'' t \times \left\{ A \frac{\cos h}{\sin \Delta} + A' \frac{\cos 2h}{\sin^2 \Delta} \right\},$$

$$\text{and } d(\delta \Delta) = -15 t \times \left\{ A \cos \Delta + B' \cos 2\Delta \cdot \sin h + A' C \sin 2h \right\};$$

$$\text{where } A = Q' = \rho \sin P' \cos \phi',$$

$$A' = A^2 = \rho^2 \sin^2 P' \cos^2 \phi',$$

$$B' = A Q'' = \rho^2 \sin^2 P' \sin \phi' \cos \phi',$$

$$\text{and } C = \cot \Delta \cdot \left(\frac{1}{2} + \sin^2 \Delta \right).$$

The logarithms of the quantities A or Q' and $Q'' (= \rho \sin P' \sin \phi')$ have been tabulated at intervals of $10''$ for all values of P' from $53' 30''$ to $61' 40''$, to seven places of decimals, and the values of A' and B' to five places of decimals. Log. C has also been tabulated to five places of decimals from $\Delta = 60^\circ$ to $\Delta = 110^\circ$ at intervals of 1° .

A general table has also been made, for mean value of $P' (= 57')$, of the values of $d(\delta h)$ and $d(\delta \Delta)$, at intervals of 5° , from $h = 0$ to $h = 100^\circ$, and from $\Delta = 65^\circ$ to $\Delta = 115^\circ$, to be used as a check on the calculation by the preceding formulæ. The sign of $d(\delta \Delta)$ must be changed for east hour-angles.

The other parts of the process of reduction need no explanation, as the coefficients of the corrections to parallax, and to the assumed R.A. and N.P.D. of the star and the moon's centre, as well as those which depend on the error of time t , which enter into the expression for the distance of corresponding point from the centre of the moon, are computed by formulæ precisely the same as those used at Greenwich. The formulæ for the variation of this distance will be found at page 364 of my *Astronomy* before referred to, in which however it is to be observed that, by a misprint, the coefficients of δD and $\delta \Delta$ have been affected with the same instead of different signs. For the sake of a more easy comparison of the results of occultations observed both at Greenwich and Oxford, the Greenwich notation has been retained.

The observations of the Meteoric Shower of November 13-14 need no explanation.

ROBERT MAIN.

RADCLIFFE OBSERVATORY, OXFORD,
1868, October 20.

RADCLIFFE OBSERVATORY,
OXFORD.

SEPARATE RESULTS

FOR

MEAN R.A. AND MEAN N.P.D. OF STARS

OBSERVED IN THE YEAR

1866.

2 *Separate Results for Mean R.A. and Mean N.P.D. of Stars*

| Day, 1866. | Observer. | Magn. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Magn. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|------------------|-----------|-----------|-------------------------------|---------------------------------|---------------------|-----------|------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| Lalande 47309. | | | | | ε Ceti (concluded). | | | | |
| Oct. 31 | Q | 7.5 | 0 1 6.78 | 60 54 32.85 | Nov. 20 | Q | ... | 0 12 36.07 | 99 34 3.89 |
| | | | | | 21 | Q | ... | 36.06 | 2.23 |
| | | | | | 23 | Q | ... | 35.88 | 2.21 |
| α Andromedæ. | | | | | Dec. 10 | Q | ... | 36.07 | 0.46 |
| Oct. 8 | Q | ... | 0 1 27.77 | 61 38 58.88 | 12 | Q | ... | 35.92 | 0.39 |
| 26 | Q | ... | 27.85 | 58.57 | 15 | Q | ... | 36.00 | 1.32 |
| Nov. 6 | Q | ... | 27.70 | 58.38 | Means... | ... | 0 12 35.98 | 99 34 1.91 | |
| 21 | Q | ... | 27.87 | 59.45 | W.B. (2) O. 328. | | | | |
| 23 | Q | ... | 27.80 | 59.73 | Oct. 31 | Q | 7.5 | 0 13 16.83 | 66 4 43.67 |
| Dec. 14 | Q | ... | 27.87 | 58.47 | δ Piscium. | | | | |
| Means... | ... | 0 1 27.81 | 61 38 58.91 | | Oct. 22 | Q | ... | 0 13 42.08 | 82 33 14.93 |
| W.B. (2) O. 44. | | | | | Lalande 387. | | | | |
| Dec. 10 | Q | 7.4 | 0 3 37.37 | 57 36 52.76 | Sept. 24 | Q | 7.4 | 0 14 11.46 | 65 24 20.61 |
| W.B. (2) O. 112. | | | | | Oct. 16 | Q | 8.0 | 11.33 | 20.09 |
| Sept. 24 | Q | 7.6 | 0 5 21.04 | 68 11 21.11 | Means... | 7.7 | 0 14 11.40 | 65 24 20.35 | |
| Oct. 16 | Q | 7.7 | 20.94 | 22.60 | ι Sculptoris. | | | | |
| Nov. 20 | Q | 7.5 | 21.06 | 23.62 | Nov. 27 | Q | ... | 0 14 46.95 | 119 43 21.09 |
| Means... | 7.6 | 0 5 21.01 | 68 11 22.44 | | Dec. 14 | Q | ... | 47.03 | 18.84 |
| γ Pegasi. | | | | | Means... | ... | 0 14 46.99 | 119 43 19.97 | |
| Oct. 30 | Q | ... | 0 6 20.29 | 75 33 43.24 | Σ 28. | | | | |
| Nov. 17 | Q | ... | 20.20 | 42.60 | (2nd star.) | | | | |
| Means... | ... | 0 6 20.25 | 75 33 42.92 | | Oct. 30 | Q | 8.3 | 0 16 52.07 | 61 14 28.41 |
| χ Pegasi. | | | | | 44 Piscium. | | | | |
| Nov. 27 | Q | ... | 0 7 40.30 | 70 32 18.97 | Sept. 24 | Q | ... | 0 18 31.99 | 88 48 10.38 |
| Dec. 8 | Q | ... | 40.53 | 17.04 | Dec. 15 | Q | ... | 32.04 | 9.25 |
| Means... | ... | 0 7 40.42 | 70 32 18.01 | | Means... | ... | 0 18 32.02 | 88 48 9.82 | |
| ι Ceti. | | | | | | | | | |
| Oct. 26 | Q | ... | 0 12 35.89 | 99 34 2.60 | | | | | |
| Nov. 6 | Q | ... | 35.92 | 2.16 | | | | | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|------------------|-----------|------|-------------------------------|---------------------------------|-------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| 10 Ceti. | | | | | B.A.C. 158. | | | | |
| Nov. 3 | Q | 7.0 | 0 19 45.19 | 90 47 32.98 | Oct. 16 | Q | 6.0 | 0 30 11.10 | 55 20 18.38 |
| 19 | Q | 7.0 | 45.28 | 32.62 | ε Andromedæ. | | | | |
| Means... | 7.0 | | 0 19 45.24 | 90 47 32.80 | Nov. 17 | Q | ... | 0 31 28.87 | 61 24 59.43 |
| 12 Ceti. | | | | | 54 Piscium. | | | | |
| Oct. 16 | Q | 6.5 | 0 23 11.87 | 94 41 52.30 | Oct. 30 | Q | 7.0 | 0 32 23.81 | 69 28 24.20 |
| 22 | Q | ... | 11.94 | 52.45 | 31 | Q | 6.5 | 23.60 | 24.25 |
| 31 | Q | 6.3 | 11.98 | 54.55 | Means... | 6.7 | | 0 32 23.71 | 69 28 24.23 |
| Nov. 27 | Q | ... | 11.99 | 52.16 | 55 Piscium. | | | | |
| Dec. 8 | Q | ... | 12.20 | 51.65 | Oct. 22 | Q | 6.4 | 0 32 52.53 | 69 17 50.07 |
| 10 | Q | ... | 11.96 | 51.80 | W.B. (2) O. 873. | | | | |
| 12 | Q | ... | 12.06 | 53.01 | Dec. 10 | Q | 7.5 | 0 33 56.32 | 69 42 54.57 |
| Means... | 6.4 | | 0 23 12.00 | 94 41 52.56 | 12 | Q | ... | 56.32 | 55.08 |
| Groombridge 67. | | | | | Means... | 7.5 | | 0 33 56.32 | 69 42 54.83 |
| Nov. 20 | Q | 7.5 | ..... | 4 25 20.92 | β Ceti. | | | | |
| 21 | Q | 7.6 | ..... | 19.77 | Nov. 3 | Q | ... | 0 36 51.74 | 108 43 21.53 |
| Means... | 7.5 |  | ..... | 4 25 20.35 | 14 | Q | ... | 51.66 | 23.80 |
| W.B. (2) O. 609. | | | | | 19 | Q | ... | 51.69 | 22.49 |
| Nov. 30 | Q | 7.4 | 0 24 30.56 | 69 54 37.52 | 27 | Q | ... | 51.49 | 20.94 |
| W.B. (2) O. 639. | | | | | 30 | Q | ... | 51.68 | 20.03 |
| Oct. 30 | Q | 7.5 | 0 25 36.90 | 67 32 52.17 | Dec. 8 | Q | ... | 51.67 | (16.71) |
| B.A.C. 138. | | | | | Means... | ... | | 0 36 51.66 | 108 43 21.76 |
| Nov. 3 | Q | 7.6 | 0 27 39.41 | 95 17 13.32 | W.B. (2) O. 1016. | | | | |
| Dec. 14 | Q | 7.6 | 39.28 | 11.47 | Oct. 31 | Q | 7.4 | 0 39 39.36 | 69 6 30.43 |
| Means... | 7.6 | | 0 27 39.35 | 95 17 12.40 | B.A.C. 221. | | | | |
| W.B. (2) O. 742. | | | | | Dec. 15 | Q | ... | 0 41 21.20 | 85 24 32.16 |
| Nov. 19 | Q | 7.9 | 0 29 25.58 | 69 39 49.32 | | | | | |

4 *Separate Results for Mean R.A. and Mean N.P.D. of Stars*

| Day. 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day. 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-----------------------------|-----------|------|-------------------------------|---------------------------------|------------------|-----------|------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| δ Piscium. | | | | | W.B. (1) O. 855. | | | | |
| Oct. 22 | Q | ... | ° 41 43'93 | 83 8 40'90 | Nov. 3 | Q | ... | ° 49 49'79 | 88 51 0'65 |
| Nov. 19 | Q | ... | 43'93 | 44'03 | 30 | Q | ... | 49'90 | 50 58'07 |
| Means... | ... | ... | ° 41 43'93 | 83 8 42'47 | Means... | ... | ... | ° 49 49'85 | 88 50 59'36 |
| ι Piscium. (South Star.) | | | | | 2 Ursæ Minoris. | | | | |
| Nov. 3 | Q | 7'3 | ° 42 41'49 | 63 1 13'78 | Dec. 14 | Q | ... | ..... | 4 27 48'95 |
| ι Piscium. (North Star.) | | | | | Piazzì O. 253. | | | | |
| Dec. 10 | Q | 7'9 | ° 42 41'74 | 63 1 9'60 | Dec. 7 | Q | 7'4 | ° 53 19'36 | 69 28 24'31 |
| | | | | | 10 | Q | 7'7 | 19'42 | 25'11 |
| | | | | | Means... | 7'5 | ° 53 19'39 | 69 28 24'71 | |
| W.B. (1) O. 741. | | | | | ε Piscium. | | | | |
| Dec. 7 | Q | 8'1 | ° 43 30'57 | 87 20 55'19 | Nov. 9 | Q | ... | ° 55 59'34 | 82 49 56'42 |
| 36 Andromedæ. | | | | | 19 | Q | ... | 59'52 | 55'88 |
| Nov. 27 | Q | 6'5 | ° 47 47'91 | 67 5 54'05 | Dec. 8 | Q | ... | 59'23 | 53'60 |
| Dec. 8 | Q | ... | 47'93 | 52'59 | Means... | ... | ... | ° 55 59'36 | 82 49 55'30 |
| 12 | Q | .. | 47'90 | 53'15 | | | | | |
| Means... | 6'5 | ... | ° 47 47'91 | 67 5 53'26 | B.A.C. 293. | | | | |
| W.B. (2) O. 1218. | | | | | Oct. 30 | Q | 7'6 | ° 56 49'97 | 83 57 20'45 |
| Oct. 22 | Q | 7'4 | ° 48 4'52 | 66 10 11'35 | 31 | Q | 7'3 | 49'98 | 20'61 |
| 30 | Q | 7'3 | 4'63 | 12'65 | Means... | 7'4 | ° 56 49'98 | 83 57 20'53 | |
| Nov. 9 | Q | 6'5 | 4'76 | 13'36 | * | | | | |
| Means... | 7'1 | ... | ° 48 4'64 | 66 10 12'45 | Nov. 30 | Q | 6'8 | ° 56 54'73 | 69 20 34'37 |
| μ Andromedæ. | | | | | B.A.C. 299. | | | | |
| Nov. 14 | Q | ... | ° 49 19'34 | 52 13 45'03 | Nov. 20 | Q | 7'1 | ° 57 8'59 | 61 3 26'96 |
| 19 | Q | ... | 19'39 | 43'16 | Dec. 21 | Q | ... | ..... | 25'32 |
| 20 | Q | ... | 19'40 | 43'98 | Means... | 7'1 | ° 57 8'59 | 61 3 26'14 | |
| Means | .. | ... | ° 49 19'38 | 52 13 44'06 | | | | | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|--------------------|-----------|----------|-------------------------------|---------------------------------|----------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| ψ^1 Piscium. | | | | | Polaris (concluded). | | | | |
| Dec. 19 | Q | ... | ..... | 69 14 39'30 | Oct. 30 | Q | ... | ..... | 1 24 20'29 |
| | | | | | 31 | Q | ... | 1 9 56'11 | 21'54 |
| <i>Reflexion.</i> | | | | | Nov. 2 | Q | ... | ..... | 22'18 |
| Dec. 19 | Q | ... | ..... | 69 14 39'79 | 3 | Q | ... | ..... | 21'92 |
| B.A.C. 325. | | | | | 9 | Q | ... | ..... | 22'14 |
| Nov. 9 | Q | 6'9 | 1 1 21'81 | 80 48 30'86 | 21 | Q | ... | ..... | 22'96 |
| β Andromedæ. | | | | | Dec. 7 | Q | ... | ..... | 18'99 |
| Dec. 12 | Q | ... | 1 2 14'10 | 55 5 26'39 | 8 | Q | ... | ..... | 19'37 |
| 15 | Q | ... | 14'18 | 26'36 | 10 | Q | ... | ..... | 19'86 |
| Means... | ... | ... | 1 2 14'14 | 55 5 26'38 | 19 | Q | ... | ..... | 18'98 |
| 36 Ceti. | | | | | Means... | ... | ... | 1 9 57'41 | 1 24 20'61 |
| Nov. 19 | Q | ... | 1 6 3'01 | 97 29 43'41 | <i>Reflexion.</i> | | | | |
| 20 | Q | 7'3 | 3'16 | 45'25 | Nov. 21 | Q | ... | ..... | 1 24 17'99 |
| Means... | 7'3 | 1 6 3'09 | 97 29 44'33 | | Dec. 19 | Q | ... | ..... | 20'79 |
| ϕ Piscium. | | | | | Mean... | ... | ... | ..... | 1 24 19'39 |
| Nov. 30 | Q | 6'0 | 1 6 28'75 | 66 7 34'88 | Polaris S.P. | | | | |
| B.A.C. 375. | | | | | Apr. 17 | Q | ... | 1 9 57'27 | -1 24 17'01 |
| Dec. 14 | Q | 8'0 | 1 8 17'50 | 106 31 41'10 | 18 | Q | ... | 58'41 | 17'58 |
| Polaris. | | | | | 21 | Q | ... | ..... | 16'28 |
| Apr. 13 | Q | ... | ..... | 1 24 19'07 | 23 | Q | ... | 58'25 | 18'73 |
| 17 | Q | ... | 1 9 57'85 | 20'18 | 24 | Q | ... | 56'99 | 17'20 |
| 20 | Q | ... | ..... | 20'24 | 25 | Q | ... | 57'12 | 16'58 |
| 22 | Q | ... | 57'40 | 20'78 | May 2 | Q | ... | ..... | 16'22 |
| 23 | Q | ... | 57'54 | 21'81 | 3 | Q | ... | 57'83 | 18'42 |
| 24 | Q | ... | 57'19 | 22'72 | 4 | Q | ... | 57'71 | 18'83 |
| 25 | Q | ... | 57'83 | 20'30 | 7 | Q | ... | ..... | 16'93 |
| 26 | Q | ... | ..... | 20'66 | 12 | Q | ... | ..... | 16'20 |
| May 3 | Q | ... | 56'94 | 19'10 | 15 | Q | ... | ..... | 17'45 |
| 4 | Q | ... | 58'45 | ..... | 16 | Q | ... | ..... | 17'62 |
| 6 | Q | ... | ..... | 19'05 | 17 | Q | ... | ..... | 16'80 |
| | | | | | 18 | Q | ... | ..... | 15'85 |
| | | | | | Oct. 14 | Q | ... | ..... | 16'23 |
| | | | | | 15 | Q | ... | ..... | 16'01 |
| | | | | | 16 | Q | ... | ..... | 17'70 |
| | | | | | 30 | Q | ... | 56'09 | 16'03 |
| | | | | | Nov. 3 | Q | ... | ..... | 15'32 |
| | | | | | Means... | ... | ... | 1 9 57'46 | -1 24 16'95 |

6 *Separate Results for Mean R.A. and Mean N.P.D. of Stars*

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|--------------------|-----------|------------|-------------------------------|---------------------------------|---------------------|-----------|------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| <i>v</i> Piscium. | | | | | <i>η</i> Piscium. | | | | |
| Dec. 21 | Q | ... | ..... | 63 26 18.02 | Jan. 1 | Q | ... | 1 24 18.93 | 75 20 45.15 |
| | | | | | Nov. 3 | Q | ... | 18.97 | 47.87 |
| | | | | | 30 | Q | ... | 19.01 | 44.33 |
| <i>l</i> Piscium. | | | | | Dec. 15 | Q | ... | 18.85 | 44.91 |
| Nov. 19 | Q | ... | 1 13 43.22 | 61 57 48.46 | Means... | ... | | 1 24 18.94 | 75 20 45.57 |
| W.B. (2) I. 265. | | | | | B.A.C. 455. | | | | |
| Nov. 20 | Q | 7.2 | 1 13 59.19 | 68 19 47.26 | Nov. 9 | Q | 7.2 | 1 24 50.09 | 73 43 12.95 |
| 30 | Q | 7.4 | 59.15 | 44.89 | B.A.C. 459. | | | | |
| Means... | 7.3 | 1 13 59.17 | 68 19 46.08 | | Dec. 10 | Q | 8.1? | 1 25 27.13 | 78 48 24.98 |
| <i>θ</i> Ceti. | | | | | <i>100</i> Piscium. | | | | |
| Nov. 27 | Q | ... | 1 17 19.65 | 98 52 33.60 | Dec. 14 | Q | 7.6 | 1 27 44.53 | 78 7 43.06 |
| Dec. 12 | Q | ... | 19.57 | 31.24 | <i>50</i> Ceti. | | | | |
| 15 | Q | ... | 19.63 | 32.21 | Nov. 20 | Q | 6.0 | 1 29 26.79 | 106 5 13.40 |
| Means... | ... | 1 17 19.62 | 98 52 32.35 | | <i>π</i> Piscium. | | | | |
| W.B. (2) I. 408. | | | | | Oct. 30 | Q | 6.2 | 1 29 59.82 | 78 32 42.36 |
| Dec. 14 | Q | 7.5 | 1 19 44.00 | 65 15 25.12 | 31 | Q | 6.6 | 59.70 | ..... |
| B.A.C. 439. | | | | | Means... | 6.4 | 1 29 59.76 | 78 32 42.36 | |
| Nov. 20 | Q | 6.5 | 1 21 11.99 | 73 36 56.31 | <i>ν</i> Piscium. | | | | |
| <i>97</i> Piscium. | | | | | Jan. 1 | Q | ... | 1 34 27.59 | 85 11 28.77 |
| Oct. 30 | Q | 7.0 | 1 22 39.13 | 72 20 18.04 | 5 | Q | ... | 27.54 | 29.59 |
| 31 | Q | 7.4 | 39.08 | 18.76 | 8 | Q | ... | 27.61 | 27.70 |
| Means... | 7.2 | 1 22 39.11 | 72 20 18.40 | | Nov. 3 | Q | ... | 27.63 | 31.07 |
| <i>48</i> Ceti. | | | | | Dec. 13 | Q | ... | 27.48 | 29.10 |
| Dec. 7 | Q | 6.0 | 1 23 10.38 | 112 19 25.34 | 14 | Q | ... | 27.65 | 31.13 |
| | | | | | 31 | Q | ... | 27.59 | 30.08 |
| | | | | | Means... | ... | 1 34 27.58 | 85 11 29.63 | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-----------------|-----------|------|-------------------------------|---------------------------------|--------------------------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| ♋ Piscium. | | | | | 50 Cassiopeiae. <i>Reflexion.</i> | | | | |
| Nov. 19 | Q | ... | 1 38 19.11 | 81 31 5.37 | Dec. 8 | Q | ... | ..... | 18 13 47.83 |
| 20 | Q | ... | 19.20 | 5.40 | 10 | Q | ... | ..... | 46.28 |
| Means... | ... | | 1 38 19.16 | 81 31 5.39 | Mean... | ... |  | ..... | 18 13 47.06 |
| B.A.C. 549. | | | | | Piazz I. 227. | | | | |
| Nov. 3 | Q | 8.0 | 1 41 5.65 | 73 38 56.99 | Dec. 7 | Q | 7.5 | 1 53 10.83 | 83 43 57.75 |
| 9 | Q | 7.6 | 5.67 | 57.53 | B.A.C. 627. | | | | |
| Means... | 7.8 | | 1 41 5.66 | 73 38 57.26 | Nov. 20 | Q | ... | 1 55 15.89 | 120 38 47.50 |
| χ Ceti. | | | | | Dec. 14 | Q | ... | 15.71 | 46.99 |
| Dec. 31 | Q | ... | 1 43 0.29 | 101 21 1.80 | Means... | ... | | 1 55 15.80 | 120 38 47.25 |
| Piazz I. 191. | | | | | B.A.C. 631. | | | | |
| Jan. 1 | Q | ... | 1 44 55.53 | 79 51 8.39 | Nov. 19 | Q | ... | 1 56 3.27 | 87 17 37.87 |
| β Arietis. | | | | | B.A.C. 632. | | | | |
| Jan. 5 | Q | ... | 1 47 14.41 | 69 50 51.90 | Dec. 31 | Q | 6.7 | 1 56 22.03 | 72 23 31.16 |
| 8 | Q | ... | 14.42 | 53.78 | α Arietis. | | | | |
| Nov. 3 | Q | ... | 14.65 | 56.29 | Jan. 1 | Q | ... | 1 59 37.45 | 67 10 21.66 |
| 9 | Q | ... | 14.62 | 56.69 | 5 | Q | ... | 37.49 | 21.29 |
| 20 | Q | ... | 14.41 | 56.96 | 6 | Q | ... | 37.40 | 21.54 |
| Dec. 14 | Q | ... | 14.49 | 53.67 | 8 | Q | ... | 37.45 | 20.92 |
| 19 | Q | ... | 14.74 | 52.76 | Mar. 27 | Q | ... | 37.43 | 22.21 |
| Means... | ... | | 1 47 14.53 | 69 50 54.58 | Nov. 9 | Q | ... | 37.52 | 23.94 |
| B.A.C. 579. | | | | | Dec. 19 | Q | ... | 37.49 | 20.99 |
| Nov. 19 | Q | ... | 1 47 59.24 | 53 22 53.03 | Means... | ... | | 1 59 37.46 | 67 10 21.79 |
| 50 Cassiopeiae. | | | | | 6 Trianguli. | | | | |
| Dec. 8 | Q | ... | ..... | 18 13 47.73 | Jan. 9 | Q | 5.7 | 2 4 36.08 | 60 19 35.59 |
| 10 | Q | ... | ..... | 45.12 | Nov. 27 | Q | 7.0 | 36.17 | 37.36 |
| Mean... | ... |  | ..... | 18 13 46.43 | Dec. 31 | Q | 6.2 | 36.00 | 35.47 |
| | | | | | Means... | 6.3 | | 2 4 36.08 | 60 19 36.14 |

8 *Separate Results for Mean R.A. and Mean N.P.D. of Stars*

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|----------------------|-----------|-----------|-------------------------------|---------------------------------|----------------------|-----------|------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| ξ ¹ Ceti. | | | | | * | | | | |
| Nov. 19 | Q | ... | 2 5 54.07 | 81 47 1.07 | Jan. 11 | Q | 7.5 | 2 13 39.50 | 67 11 18.42 |
| 20 | Q | ... | 54.01 | 1.21 | Dec. 7 | Q | 7.7 | 39.48 | 16.65 |
| Means... | ... | ... | 2 5 54.04 | 81 47 1.14 | 31 | Q | ... | 39.33 | 19.54 |
| 66 Ceti. | | | | | Means... | 7.6 | 2 13 39.44 | 67 11 18.20 | |
| Jan. 12 | Q | 7.0 | 2 5 57.10 | 93 1 17.57 | W.B. (2) II. 348. | | | | |
| Dec. 7 | Q | 6.9 | 56.84 | 15.92 | Jan. 6 | Q | 8.0 | 2 15 29.64 | 63 55 44.42 |
| Means... | 7.0 | 2 5 56.97 | 93 1 16.74 | | 9 | Q | 8.3 | 29.68 | 44.06 |
| W.B. (2) II. 154. | | | | | 12 | Q | 8.0 | 29.53 | 45.05 |
| Jan. 6 | Q | 7.7 | 2 7 42.86 | 63 15 51.31 | Nov. 27 | Q | 8.5 | 29.64 | 48.59 |
| Dec. 19 | Q | 8.0 | 43.05 | 49.84 | Means... | 8.2 | 2 15 29.62 | 63 55 45.53 | |
| Means... | 7.8 | 2 7 42.96 | 63 15 50.58 | | Piazzì II. 89. | | | | |
| 21 Arietis. | | | | | Jan. 23 | Q | ... | 2 20 20.25 | 60 43 47.68 |
| Nov. 9 | Q | ... | 2 8 7.06 | 65 34 49.38 | Dec. 19 | Q | 7.5 | 20.25 | 46.18 |
| γ Trianguli. | | | | | Means... | ... | 2 20 20.25 | 60 43 46.93 | |
| Dec. 8 | Q | ... | ... | 56 46 30.25 | 13 Trianguli. | | | | |
| 10 | Q | ... | ... | 29.26 | Jan. 8 | Q | ... | 2 20 57.22 | 60 40 22.62 |
| Mean... | ... | ... | ... | 56 46 29.76 | ξ ² Ceti. | | | | |
| <i>Reflexion.</i> | | | | | Jan. 6 | Q | ... | 2 21 2.15 | 82 8 31.73 |
| Dec. 8 | Q | ... | ... | 56 46 32.93 | 12 | Q | ... | 2.20 | 31.21 |
| 10 | Q | ... | ... | 27.78 | Nov. 19 | Q | ... | 2.26 | 31.65 |
| Mean... | ... | ... | ... | 56 46 30.36 | Dec. 7 | Q | ... | 2.27 | 31.01 |
| 67 Ceti. | | | | | 13 | Q | ... | 2.32 | 33.57 |
| Jan. 8 | Q | ... | 2 10 18.09 | 97 2 27.26 | Means... | ... | 2 21 2.24 | 82 8 31.83 | |
| 23 | Q | ... | 18.01 | 28.49 | B.A.C. 766. | | | | |
| Dec. 13 | Q | ... | 18.06 | 29.89 | Jan. 9 | Q | 6.5 | 2 22 50.37 | 65 21 37.23 |
| 14 | Q | ... | 18.02 | 28.31 | 11 | Q | 6.5 | 50.20 | 37.49 |
| Means... | ... | ... | 2 10 18.05 | 97 2 28.49 | Means... | 6.5 | 2 22 50.29 | 65 21 37.36 | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-------------------------|-----------|-------|-------------------------------|---------------------------------|--------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| Radcliffe 713 S.P. | | | | | δ Ceti. | | | | |
| May 19 | Q | 7.8 | ..... | -3 32 22.10 | Jan. 11 | Q | ... | 2 32 36.96 | 90 15 3.76 |
| 21 | Q | 7.8 | ..... | 24.08 | 29 | Q | ... | 37.04 | 3.44 |
| 23 | Q | ... | ..... | 23.34 | Means... | ... | ... | 2 32.37.00 | 90 15 3.60 |
| 29 | Q | 8.0 | ..... | 22.81 | | | | | |
| Means... | 7.9 | ..... | ..... | -3 32 23.08 | | | | | |
| B.A.C. 775. | | | | | γ Ceti. | | | | |
| Nov. 27 | Q | ... | 2 24 26.16 | 113 8 26.83 | Jan. 1 | Q | ... | 2 36 21.54 | 87 19 50.21 |
| | | | | | 9 | Q | ... | 21.61 | 49.28 |
| | | | | | 20 | Q | ... | 21.66 | 51.76 |
| | | | | | Dec. 10 | Q | ... | 21.52 | 49.95 |
| | | | | | 13 | Q | ... | 21.43 | 50.31 |
| | | | | | 31 | Q | ... | 21.54 | 50.17 |
| | | | | | Means... | ... | ... | 2 36 21.55 | 87.19 50.28 |
| Σ 280. (South star.) | | | | | ε Arietis. | | | | |
| Dec. 31 | Q | 8.0 | 2 27 26.87 | 96 13 43.21 | Jan. 12 | Q | ... | 2 37 10.18 | 75 15 24.25 |
| | | | | | Nov. 19 | Q | 6.5 | 10.10 | 27.84 |
| | | | | | Means... | 6.5 | ... | 2 37 10.14 | 75 15 26.05 |
| 15 Trianguli. | | | | | μ Ceti. | | | | |
| Dec. 8 | Q | 6.5 | 2 27 39.30 | 55 53 55.47 | Jan. 23 | Q | ... | 2 37 42.15 | 80 27 11.80 |
| 10 | Q | 6.6 | 39.39 | 55.22 | | | | | |
| Means... | 6.5 | ... | 2 27 39.35 | 55 53 55.35 | | | | | |
| 31 Arietis. | | | | | W.B. (2) II. 907. | | | | |
| Jan. 23 | Q | 6.0 | 2 29 19.69 | 78 8 4.70 | Dec. 8 | Q | 7.7 | 2 38 12.86 | 69 52 28.03 |
| Nov. 19 | Q | 6.0 | 19.63 | 7.79 | | | | | |
| Means... | 6.0 | ... | 2 29 19.66 | 78 8 6.25 | | | | | |
| B.A.C. 803. | | | | | W.B. (2) II. 976. | | | | |
| Jan. 6 | Q | ... | 2 30 22.69 | 120 37 48.56 | Jan. 6 | Q | 7.8 | 2 40 57.83 | ..... |
| 9 | Q | ... | 22.70 | 46.58 | Dec. 19 | Q | 8.3 | 57.78 | 57 42 57.37 |
| Means... | ... | ... | 2 30 22.70 | 120 37 47.57 | Means... | 8.0 | ... | 2 40 57.81 | 57 42 57.37 |
| Piazzii II. 135. | | | | | W.B. (2) II. 1004. | | | | |
| Dec. 19 | Q | 7.1 | 2 30 53.70 | 82 53 10.51 | Nov. 27 | Q | 7.5 | 2 41 58.82 | 60 1 50.47 |
| 81 Ceti. | | | | | | | | | |
| Jan. 12 | Q | ... | 2 30 56.71 | 93 58 38.27 | | | | | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | | | Mean N.P.D. 1866, Jan. 1. | | |
|-------------------------------------|-----------|------|-------------------------------|-------|----|---------------------------------|---------|---|
| | | | h. | m. | s. | ° | ' | " |
| σ Arietis. | | | | | | | | |
| Jan. 11 | Q | 6.3 | 2 44 | 6.01 | | 75 28 | 18.10 | |
| 12 | Q | ... | | 6.19 | | | 16.83 | |
| 20 | Q | ... | | 5.97 | | | 18.47 | |
| 29 | Q | ... | | 5.72 | | | 17.73 | |
| Nov. 23 | Q | ... | | 5.93 | | | 21.09 | |
| Dec. 7 | Q | 6.2 | | 5.78 | | | 17.71 | |
| 10 | Q | ... | | 5.81 | | | 17.06 | |
| Means... | | 6.2 | 2 44 | 5.92 | | 75 28 | 18.14 | |
| W.B. (2) II. 1094. | | | | | | | | |
| Dec. 8 | Q | 7.6 | 2 46 | 7.23 | | 63 48 | 7.13 | |
| W.B. (2) II. 1137. | | | | | | | | |
| Jan. 15 | Q | 7.5 | 2 47 | 43.70 | | 63 39 | 58.76 | |
| Nov. 19 | Q | 7.7 | | 43.51 | | 40 | 0.13 | |
| Dec. 13 | Q | 7.5 | | 43.51 | | 39 | 59.59 | |
| Means... | | 7.6 | 2 47 | 43.57 | | 63 39 | 59.49 | |
| 21 Persei. | | | | | | | | |
| Dec. 19 | Q | 6.0 | 2 49 | 9.67 | | 58 36 | 27.31 | |
| 31 | Q | 6.0 | | 9.63 | | | 28.29 | |
| Means... | | 6.0 | 2 49 | 9.65 | | 58 36 | 27.80 | |
| W.B. (2) II. 1184. | | | | | | | | |
| Jan. 6 | Q | 7.4 | 2 49 | 54.88 | | 59 | 1 26.70 | |
| W.B. (2) II. 1202. | | | | | | | | |
| Nov. 27 | Q | 7.5 | 2 50 | 49.42 | | 66 24 | 19.50 | |
| 7 Eridani. | | | | | | | | |
| Jan. 20 | Q | ... | 2 54 | 5.98 | | 93 24 | 43.82 | |
| Dec. 13 | Q | 6.8 | | 5.91 | | | 42.91 | |
| Means... | | 6.8 | 2 54 | 5.95 | | 93 24 | 43.37 | |
| α Ceti. | | | | | | | | |
| Jan. 9 | Q | ... | 2 55 | 16.60 | | 86 26 | 17.24 | |
| 12 | Q | ... | | 16.42 | | | (14.98) | |
| 15 | Q | ... | | 16.62 | | | 16.99 | |
| 19 | Q | ... | | 16.66 | | | 16.90 | |
| Nov. 23 | Q | ... | | 16.70 | | | 18.24 | |
| Means... | | ... | 2 55 | 16.60 | | 86 26 | 17.34 | |
| 52 Arietis. | | | | | | | | |
| Jan. 6 | Q | 6.0 | 2 57 | 35.37 | | 65 16 | 5.74 | |
| Dec. 10 | Q | 7.0 | | 35.52 | | | 7.57 | |
| 31 | Q | 6.5 | | 35.30 | | | 9.06 | |
| Means... | | 6.5 | 2 57 | 35.40 | | 65 16 | 7.46 | |
| β Persei. | | | | | | | | |
| Dec. 8 | Q | ... | 2 59 | 27.30 | | 49 33 | 45.69 | |
| 19 | Q | ... | | 27.43 | | | 47.02 | |
| Means... | | ... | 2 59 | 27.37 | | 49 33 | 46.36 | |
| W.B. (2) II. 1426. | | | | | | | | |
| Dec. 7 | Q | 8.3 | 3 0 | 4.22 | | 66 49 | 11.48 | |
| Groombridge 595. | | | | | | | | |
| Jan. 11 | Q | 6.5 | ... | ... | | 5 34 | 22.99 | |
| 23 | Q | ... | ... | ... | | | 21.44 | |
| 29 | Q | ... | ... | ... | | | 22.00 | |
| Nov. 27 | Q | 7.0 | ... | ... | | | 21.89 | |
| Dec. 13 | Q | 6.6 | ... | ... | | | 22.10 | |
| Means... | | 6.7 | ... | ... | | 5 34 | 22.08 | |
| δ Arietis. | | | | | | | | |
| Jan. 6 | Q | ... | 3 3 | 58.19 | | 70 46 | 55.89 | |
| 19 | Q | ... | | 58.24 | | | 55.29 | |
| Dec. 10 | Q | ... | | 58.35 | | | 55.95 | |
| 31 | Q | ... | | 58.23 | | | 55.17 | |
| Means... | | ... | 3 3 | 58.25 | | 70 46 | 55.58 | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-----------------------|-----------|------|-------------------------------|---------------------------------|-----------------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | o ' " | | | | h. m. s. | o ' " |
| Σ 369. (1st star.) | | | | | ο Tauri. | | | | |
| Jan. 15 | Q | ... | 3 8 26.52 | 50 0 47.42 | Jan. 9 | Q | ... | 3 17 36.27 | 81 26 40.72 |
| Nov. 27 | Q | 7.6 | 26.19 | 47.44 | Feb. 3 | Q | ... | 36.39 | 40.75 |
| Dec. 8 | Q | 7.0 | 26.43 | 46.29 | Nov. 27 | Q | ... | 36.24 | 41.26 |
| 19 | Q | 7.0 | 26.54 | 46.64 | Means... | ... | ... | 3 17 36.30 | 81 26 40.91 |
| Means... | 7.2 | | 3 8 26.42 | 50 0 46.95 | Σ 394. (1st star.) | | | | |
| B.A.C. 1017. | | | | | Jan. 23 | Q | ... | 3 20 18.19 | 70 0 16.00 |
| Dec. 28 | Q | ... | 3 10 21.30 | 56 16 15.07 | Dec. 10 | Q | 7.6 | 18.28 | 15.90 |
| 59 Arietis. | | | | | 28 | Q | 7.7 | 18.29 | 19.53 |
| Dec. 10 | Q | 7.0 | 3 11 55.94 | 63 24 57.11 | Means.. | 7.6 | | 3 20 18.25 | 70 0 17.14 |
| 71 Arietis. | | | | | f Tauri. | | | | |
| Jan. 5 | Q | ... | 3 13 29.76 | 69 20 19.08 | Jan. 15 | Q | ... | 3 23 28.64 | 77 31 26.95 |
| 23 | Q | ... | 29.78 | 16.83 | 25 | Q | 5.8 | 28.75 | 28.55 |
| Means... | ... | | 3 13 29.77 | 69 20 17.96 | 29 | Q | ... | 28.67 | 30.48 |
| W.B. (2) III. 279. | | | | | Dec. 19 | Q | 6.0 | 28.81 | 28.40 |
| Jan. 25 | Q | 7.5 | 3 14 4.10 | 59 4 14.32 | Means... | 5.9 | | 3 23 28.72 | 77 31 28.60 |
| κ ² Ceti. | | | | | ε Eridani. | | | | |
| Jan. 20 | Q | 6.0 | 3 14 6.21 | 86 48 31.19 | Jan. 9 | Q | ... | 3 26 37.16 | 99 54 49.22 |
| α Persei. | | | | | 20 | Q | ... | 37.05 | 48.82 |
| Dec. 14 | Q | ... | ..... | 40 37 8.90 | Feb. 3 | Q | ... | 37.07 | 49.48 |
| Reflexion. | | | | | Dec. 8 | Q | ... | 37.01 | 49.67 |
| Dec. 14 | Q | ... | ..... | 40 37 13.21 | Means... | ... | | 3 26 37.07 | 99 54 49.30 |
| 65 Arietis. | | | | | B.A.C. 1097. | | | | |
| Jan. 12 | Q | ... | 3 16 42.79 | 69 40 26.02 | Dec. 13 | Q | 7.0 | 3 26 40.65 | 58 26 2.84 |
| Dec. 19 | Q | 6.5 | 42.88 | 27.99 | B.A.C. 1110. (2nd star.) | | | | |
| Means... | 6.5 | | 3 16 42.84 | 69 40 27.01 | Jan. 23 | Q | 7.0 | 3 29 54.98 | 89 51 6.27 |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|------------------------------|-----------|------|-------------------------------|---------------------------------|-----------------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| B.A.C. 1111. | | | | | δ Eridani. | | | | |
| Jan. 11 | Q | ... | ..... | 27 13 17.98 | Jan. 6 | Q | ... | 3 36 49.72 | 100 13 9.65 |
| 12 | Q | ... | ..... | 22.07 | 15 | Q | ... | 49.75 | 7.31 |
| Dec. 14 | Q | ... | ..... | 20.46 | Dec. 8 | Q | ... | 49.88 | 8.62 |
| 31 | Q | ... | ..... | 24.20 | Means... | ... | ... | 3 36 49.78 | 100 13 8.53 |
| Mean... | ... | ... | ..... | 27 13 21.18 | 24 Eridani. | | | | |
| <i>Reflexion.</i> | | | | | Jan. 9 | Q | 6.0 | 3 37 42.28 | 91 35 15.78 |
| Jan. 11 | Q | ... | ..... | 27 13 21.09 | Feb. 3 | Q | ... | 42.19 | 15.91 |
| 12 | Q | ... | ..... | 20.09 | Means... | 6.0 | ... | 3 37 42.24 | 91 35 15.85 |
| Dec. 14 | Q | ... | ..... | 24.34 | α¹ Tauri. | | | | |
| 31 | Q | ... | ..... | 23.35 | Jan. 23 | Q | 6.0 | 3 38 33.38 | 84 22 27.57 |
| Mean... | ... | ... | ..... | 27 13 22.22 | e Tauri. | | | | |
| Σ 427. (2nd star.) | | | | | Jan. 25 | Q | ... | 3 40 55.63 | 79 16 16.73 |
| Dec. 19 | Q | 7.7 | 3 32 27.79 | 61 39 43.32 | Dec. 19 | Q | ... | 55.48 | 16.48 |
| 11 Tauri. | | | | | Means... | .. | ... | 3 40 55.56 | 79 16 16.61 |
| Jan. 8 | Q | ... | 3 32 46.35 | 65 6 23.04 | B.A.C. 1179. | | | | |
| Feb. 2 | Q | 6.5 | 46.29 | 23.29 | Jan. 29 | Q | ... | 3 40 59.46 | 119 45 22.58 |
| 10 | Q | ... | 46.41 | 23.60 | B.A.C. 1195. | | | | |
| Dec. 28 | Q | ... | 46.43 | 26.27 | Jan. 20 | Q | 7.5 | 3 42 54.57 | 66 26 45.70 |
| Means... | 6.5 | ... | 3 32 46.37 | 65 6 24.05 | Dec. 10 | Q | 7.5 | 54.46 | 44.00 |
| α Persei. | | | | | 13 | Q | ... | 54.51 | 44.90 |
| Jan. 29 | Q | ... | 3 33 53.33 | 56 28 2.46 | Means... | 7.5 | ... | 3 42 54.51 | 66 26 44.87 |
| Σ 436. (2nd star.) | | | | | ζ Persei. | | | | |
| Jan. 25 | Q | ... | 3 34 32.25 | 103 3 4.36 | Jan. 11 | Q | ... | ..... | 58 31 2.76 |
| W.B. (2) III. 748. | | | | | Feb. 10 | Q | ... | 3 45 42.96 | 1.90 |
| Dec. 10 | Q | ... | 3 34 53.07 | 69 9 1.48 | Dec. 14 | Q | ... | 42.84 | 3.18 |
| B.A.C. 1143. | | | | | Means... | ... | ... | 3 45 42.90 | 58 31 2.61 |
| Jan. 20 | Q | 6.9 | 3 36 40.69 | 69 29 49.75 | <i>Reflexion.</i> | | | | |
| | | | | | Jan. 11 | Q | ... | ..... | 58 31 1.90 |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-----------------------|-----------|------|-------------------------------|---------------------------------|-----------------------|-----------|------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| 32 Eridani. | | | | | W.B. (2) III. 1191. | | | | |
| Jan. 6 | Q | 5.0 | 3 47 33.78 | 93 21 10.04 | Dec. 13 | Q | 7.7 | 3 56 6.91 | 69 18 7.28 |
| 9 | Q | 6.0 | 33.79 | 10.25 | 14 | Q | 8.2 | 6.87 | 5.78 |
| Dec. 8 | Q | 6.0 | 33.85 | 11.91 | Means... | 8.0 | 3 56 6.89 | 69 18 6.53 | |
| Means... | 5.7 | | 3 47 33.81 | 93 21 10.73 | 40 Tauri. | | | | |
| ε Persei. | | | | | Jan. 29 | Q | ... | 3 56 38.47 | 84 56 13.60 |
| Dec. 19 | Q | ... | 3 48 52.19 | 50 22 49.36 | Dec. 8 | Q | 6.7 | 38.57 | 13.35 |
| W.B. (2) III. 1057-8. | | | | | Means... | 6.7 | 3 56 38.52 | 84 56 13.48 | |
| Jan. 25 | Q | 7.5 | 3 49 20.76 | 69 4 5.22 | ψ Tauri. | | | | |
| γ Eridani. | | | | | Jan. 12 | Q | ... | ..... | 61 21 53.05 |
| Jan. 15 | Q | ... | 3 51 46.63 | 103 53 31.02 | Dec. 10 | Q | 6.9 | 3 58 43.63 | 50.96 |
| 23 | Q | ... | 46.62 | 29.09 | Means... | 6.9 | 3 58 43.63 | 61 21 52.01 | |
| Feb. 10 | Q | ... | 46.70 | 31.45 | Reflexion. | | | | |
| 21 | Q | ... | 46.60 | 31.74 | Jan. 12 | Q | ... | ..... | 61 21 52.68 |
| Dec. 10 | Q | ... | 46.58 | 29.03 | ω ¹ Tauri. | | | | |
| 28 | Q | ... | 46.65 | 31.35 | Jan. 9 | Q | ... | 4 1 21.83 | 70 44 51.49 |
| Means... | ... | | 3 51 46.63 | 103 53 30.61 | Feb. 10 | Q | ... | 21.81 | 52.08 |
| Groombridge 750. | | | | | Dec. 29 | Q | ... | ..... | 52.89 |
| Jan. 6 | Q | 7.0 | ..... | 4 48 15.32 | 31 | Q | ... | 21.62 | 51.73 |
| 20 | Q | 7.0 | ..... | 12.35 | Means... | ... | 4 1 21.75 | 70 44 52.05 | |
| Feb. 2 | Q | 6.7 | ..... | 11.98 | p Tauri. | | | | |
| 7 | Q | 7.0 | ..... | 12.56 | Jan. 11 | Q | 6.6 | 4 2 40.48 | 63 52 17.93 |
| Means... | 6.9 |  | ..... | 4 48 13.05 | Feb. 21 | Q | ... | 40.49 | 16.71 |
| Groombridge 750 S.P. | | | | | Means... | 6.6 | 4 2 40.49 | 63 52 17.32 | |
| May 24 | Q | ... | ..... | -4 48 11.24 | B.A.C. 1281. | | | | |
| June 22 | Q | ... | ..... | 12.49 | Dec. 8 | Q | 7.5 | 4 3 24.96 | 73 42 20.63 |
| 23 | Q | ... | ..... | 12.05 | 14 | Q | 7.5 | 25.00 | ..... |
| 26 | Q | ... | ..... | 12.68 | Means... | 7.5 | 4 3 24.98 | 73 42 20.63 | |
| 28 | Q | ... | ..... | 13.71 | | | | | |
| Mean... | ... |  | ..... | -4 48 12.43 | | | | | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-------------------------|-----------|------|-------------------------------|---------------------------------|-------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| B.A.C. 1289. | | | | | B.A.C. 1340. | | | | |
| Jan. 20 | Q | 6.7 | 4 4 54.76 | 67 56 1.34 | Jan. 23 | Q | ... | 4 14 6.28 | 115 20 56.66 |
| Dec. 10 | Q | 7.0 | 54.70 | 1.81 | | | | | |
| Means... | | 6.8 | 4 4 54.73 | 67 56 1.58 | | | | | |
| ε ¹ Eridani. | | | | | ξ Eridani. | | | | |
| Jan. 23 | Q | ... | 4 5 19.54 | 97 11 22.90 | Jan. 29 | Q | ... | 4 17 0.56 | 94 3 27.14 |
| 29 | Q | ... | 19.55 | 20.44 | | | | | |
| Means... | | ... | 4 5 19.55 | 97 11 21.67 | | | | | |
| Lalande 8033. | | | | | B.A.C. 1373. | | | | |
| Feb. 2 | Q | 7.3 | 4 10 5.59 | 112 29 8.51 | Dec. 13 | Q | 7.0 | 4 20 3.76 | 68 40 54.96 |
| Dec. 14 | Q | ... | 5.45 | 11.19 | | | | | |
| Means... | | 7.3 | 4 10 5.52 | 112 29 9.85 | | | | | |
| 56 Tauri. | | | | | W.B. (1) IV. 417. | | | | |
| Dec. 10 | Q | 6.8 | 4 11 41.11 | 68 33 10.18 | Feb. 10 | Q | 8.0 | 4 20 42.80 | 80 13 45.81 |
| | | | | | | | | | |
| γ Tauri. | | | | | ε Tauri. | | | | |
| Jan. 6 | Q | ... | 4 12 10.29 | 74 41 54.70 | Jan. 11 | Q | ... | 4 20 47.68 | 71 7 10.70 |
| 12 | Q | ... | 10.17 | 54.76 | 12 | Q | ... | 47.53 | 8.58 |
| 25 | Q | ... | 10.25 | 55.15 | 15 | Q | ... | 47.57 | 10.79 |
| Feb. 10 | Q | ... | 10.25 | 54.39 | 20 | Q | ... | 47.59 | 10.42 |
| 12 | Q | ... | 10.16 | 55.49 | 25 | Q | ... | 47.63 | 10.34 |
| 21 | Q | ... | 10.25 | 56.30 | Feb. 2 | Q | ... | 47.66 | 10.36 |
| Dec. 13 | Q | ... | 10.24 | 55.70 | 7 | Q | ... | 47.71 | 11.55 |
| 28 | Q | ... | 10.23 | 57.64 | 21 | Q | ... | 47.75 | 12.35 |
| 29 | Q | ... | ..... | 56.20 | Dec. 19 | Q | ... | 47.65 | 10.01 |
| 31 | Q | ... | 10.32 | 57.81 | 28 | Q | ... | 47.62 | 12.11 |
| Means... | | ... | 4 12 10.24 | 74 41 55.81 | 29 | Q | ... | ..... | 12.68 |
| | | | | | Means... | | ... | 4 20 47.64 | 71 7 10.90 |
| B.A.C. 1338. | | | | | B.A.C. 1388. | | | | |
| Jan. 11 | Q | 7.0 | 4 13 41.43 | 69 8 3.16 | Jan. 23 | Q | 7.5 | 4 22 26.63 | 70 27 17.48 |
| 20 | Q | 7.4 | 41.52 | 3.79 | | | | | |
| Feb. 13 | Q | 7.5 | 41.50 | 4.27 | | | | | |
| Dec. 19 | Q | ... | 41.43 | 3.18 | | | | | |
| Means... | | 7.3 | 4 13 41.47 | 69 8 3.60 | 46 Eridani. | | | | |
| | | | | | Jan. 12 | Q | ... | 4 27 22.91 | 97 1 18.14 |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|------------------------------|-----------|------|-------------------------------|---------------------------------|-------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| Aldebaran. | | | | | 4 Camelopardali. | | | | |
| Jan. 11 | Q | ... | 4 28 13.95 | 73 45 47.13 | Jan. 20 | Q | ... | ..... | 33 29 9.92 |
| 25 | Q | ... | 14.11 | 46.51 | 23 | Q | ... | ..... | 7.06 |
| 31 | Q | ... | 14.13 | 47.00 | Mean... | ... | ... | ..... | 33 29 8.49 |
| Feb. 12 | Q | ... | 14.07 | 47.18 | <i>Reflexion.</i> | | | | |
| 13 | Q | ... | 13.93 | 46.90 | Jan. 20 | Q | ... | ..... | 33 29 7.49 |
| May 7 | Q | ... | 14.04 | 45.75 | 23 | Q | ... | ..... | 7.60 |
| June 21 | Q | ... | 14.12 | 46.29 | Mean... | ... | ... | ..... | 33 29 7.55 |
| 22 | Q | ... | 14.11 | 48.30 | 56 Eridani. | | | | |
| Dec. 19 | Q | ... | 14.08 | 46.93 | Feb. 21 | Q | ... | 4 37 39.12 | 98 45 23.03 |
| Means... | ... | ... | 4 28 14.06 | 73 45 46.89 | μ Eridani. | | | | |
| σ^1 Tauri. | | | | | Jan. 31 | Q | ... | 4 38 48.14 | 93 30 9.59 |
| Feb. 21 | Q | ... | 4 31 30.22 | 74 28 0.39 | Feb. 3 | Q | ... | 48.15 | 9.01 |
| Σ 576. (1st star.) | | | | | 12 | Q | ... | 48.27 | 11.00 |
| Feb. 7 | Q | 8.0 | 4 31 46.70 | 103 17 58.14 | 13 | Q | ... | 48.30 | 10.10 |
| Radcliffe 1272. | | | | | 17 | Q | ... | 48.23 | 11.54 |
| Jan. 15 | Q | ... | ..... | 3 54 22.16 | 19 | Q | ... | 48.24 | 11.15 |
| Feb. 10 | Q | ... | ..... | 22.99 | Means... | ... | ... | 4 38 48.22 | 93 30 10.40 |
| Mean... | ... | ... | ..... | 3 54 22.58 | B.A.C. 1475. | | | | |
| Radcliffe 1272 S.P. | | | | | Dec. 19 | Q | ... | 4 40 38.94 | 57 39 0.78 |
| June 2 | Q | ... | ..... | -3 54 18.91 | B.A.C. 1482. | | | | |
| 7 | Q | 8.0 | ..... | 22.00 | Feb. 7 | Q | ... | 4 41 4.87 | 118 19 52.60 |
| 8 | Q | 8.0 | ..... | 20.26 | * | | | | |
| July 4 | Q | ... | ..... | 20.35 | Jan. 6 | Q | ... | 4 43 1.74 | 53 5 13.63 |
| 12 | Q | ... | ..... | 21.70 | B.A.C. 1497. | | | | |
| Means... | 8.0 | ... | ..... | -3 54 20.60 | Jan. 11 | Q | 6.7 | 4 44 25.00 | 62 19 49.43 |
| 95 Tauri. | | | | | | | | | |
| Jan. 11 | Q | 7.0 | 4 35 7.11 | 66 10 5.28 | | | | | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|---------------------|-----------|-------|-------------------------------|---------------------------------|---------------------|-----------|-----------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| Radcliffe 1311. | | | | | ε Aurigæ. | | | | |
| Jan. 12 | Q | ... | ..... | 4 13 34.89 | Jan. 20 | Q | ... | ..... | 46 22 44.51 |
| 25 | Q | 7.0 | ..... | 35.56 | 23 | Q | ... | ..... | 44.25 |
| Feb. 21 | Q | ... | ..... | 35.97 | Mean... | ... | ..... | ..... | 46 22 44.38 |
| Dec. 28 | Q | ... | ..... | 37.51 | | | | | |
| Means... | 7.0 | ..... | ..... | 4 13 35.98 | Reflexion. | | | | |
| Radcliffe 1311 S.P. | | | | | Jan. 20 | Q | ... | ..... | 46 22 48.45 |
| June 19 | Q | ... | ..... | -4 13 33.16 | 23 | Q | ... | ..... | 45.30 |
| July 9 | Q | ... | ..... | 34.62 | Mean... | ... | ..... | ..... | 46 22 46.88 |
| 10 | Q | ... | ..... | 34.31 | | | | | |
| Mean... | ... | ..... | ..... | -4 13 34.03 | Piazz i v. 278. | | | | |
| 5 Orionis. | | | | | Jan. 6 | Q | 6.7 | 4 55 3.80 | 88 35 21.37 |
| Feb. 10 | Q | ... | 4 46 23.55 | 87 42 58.41 | 11 | Q | 7.0 | 3.79 | 21.66 |
| | | | | | Feb. 12 | Q | 7.5 | 3.74 | 21.49 |
| | | | | | Means... | 7.1 | 4 55 3.78 | 88 35 21.51 | |
| B.A.C. 1509. | | | | | B.A.C. 1564. | | | | |
| Feb. 2 | Q | ... | ..... | 16 26 34.65 | Feb. 21 | Q | ... | 4 57 18.57 | 121 58 2.06 |
| | | | | | | | | | |
| | | | | | Radcliffe 1377. | | | | |
| | | | | | Feb. 13 | Q | 7.3 | ..... | 4 27 29.82 |
| | | | | | 19 | Q | ... | ..... | 29.78 |
| | | | | | Means... | 7.3 | ..... | ..... | 4 27 29.80 |
| | | | | | Radcliffe 1377 S.P. | | | | |
| B.A.C. 1519. | | | | | July 14 | Q | ... | ..... | -4 27 26.37 |
| Feb. 12 | Q | 7.0 | 4 47 57.85 | 89 45 11.15 | 18 | Q | ... | ..... | 26.42 |
| | | | | | 19 | Q | ... | ..... | 27.58 |
| | | | | | Mean... | ... | ..... | ..... | -4 27 26.79 |
| ε Aurigæ. | | | | | m Tauri. | | | | |
| Feb. 7 | Q | ... | 4 48 16.17 | 57 2 58.50 | Dec. 28 | Q | ... | 4 59 31.84 | 71 32 17.43 |
| 17 | Q | ... | 16.21 | 58.38 | | | | | |
| 19 | Q | ... | 16.16 | 57.71 | | | | | |
| 26 | Q | ... | ..... | 59.35 | | | | | |
| Mar. 2 | Q | ... | 16.23 | 58.10 | | | | | |
| Means... | ... | ..... | 4 48 16.19 | 57 2 58.41 | | | | | |
| { Radcliffe 1370. } | | | | | | | | | |
| { Σ 622 (centre). } | | | | | | | | | |
| Jan. 31 | Q | ... | 4 51 9.14 | 88 32 6.13 | | | | | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|---------------|-----------|------|-------------------------------|---------------------------------|-----------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| ε Leporis. | | | | | Rigel (concluded). | | | | |
| Jan. 22 | Q | ... | 4 59 47.37 | 112 33 11.92 | May 18 | Q | ... | 5 8 6.03 | 98 21 29.13 |
| Feb. 3 | Q | ... | 47.34 | 10.06 | 21 | Q | ... | 6.03 | 34.83 |
| 7 | Q | ... | 47.34 | 10.24 | 23 | Q | ... | 6.11 | 34.26 |
| Mar. 5 | Q | ... | 47.39 | ..... | June 21 | Q | ... | 5.97 | 31.91 |
| Means... | ... | | 4 59 47.36 | 112 33 10.74 | 25 | Q | ... | 5.91 | 35.23 |
| 105 Tauri. | | | | | 26 | Q | ... | 6.02 | 32.28 |
| Jan. 12 | Q | ... | 4 59 54.80 | 68 28 31.79 | Means... | ... | | 5 8 5.98 | 98 21 33.02 |
| 25 | Q | 6.6 | 54.85 | 31.13 | W.B. (2) V. 270-1. | | | | |
| Means... | 6.6 | | 4 59 54.83 | 68 28 31.46 | Jan. 25 | Q | 7.5 | 5 10 30.02 | 68 21 14.99 |
| i Orionis. | | | | | Feb. 12 | Q | 7.5 | 29.98 | 16.96 |
| Feb. 17 | Q | ... | 5 0 35.19 | 81 40 44.70 | Means... | 7.5 | | 5 10 30.00 | 68 21 15.98 |
| B.A.C. 1594. | | | | | 19 Aurigæ. | | | | |
| Feb. 23 | Q | ... | 5 2 37.67 | ..... | Feb. 23 | Q | ... | 5 11 10.99 | 56 11 8.99 |
| ρ Orionis. | | | | | B.A.C. 1639. | | | | |
| Jan. 11 | Q | 5.7 | 5 6 17.18 | 87 18 4.67 | Feb. 17 | Q | ... | 5 11 19.29 | 70 0 30.97 |
| 20 | Q | 5.7 | 17.20 | 3.58 | 19 | Q | ... | 19.28 | 33.26 |
| 23 | Q | 6.0 | 17.18 | 4.13 | Dec. 28 | Q | ... | 19.15 | 35.31 |
| Means... | 5.8 | | 5 6 17.19 | 87 18 4.13 | Means... | ... | | 5 11 19.24 | 70 0 33.18 |
| Capella. | | | | | 21 Orionis. | | | | |
| Feb. 2 | Q | ... | ..... | 44 8 32.35 | Jan. 6 | Q | ... | 5 12 11.90 | 87 32 43.32 |
| Reflexion. | | | | | Σ 688. (1st star.) | | | | |
| Feb. 2 | Q | ... | ..... | 44 8 31.16 | Feb. 3 | Q | 8.0 | 5 13 2.45 | 100 53 21.69 |
| Rigel. | | | | | 7 | Q | 8.0 | 2.61 | 22.36 |
| Jan. 31 | Q | ... | 5 8 5.89 | 98 21 32.73 | Means... | 8.0 | | 5 13 2.53 | 100 53 22.03 |
| Feb. 27 | Q | ... | 5.99 | 33.81 | B.A.C. 1655. | | | | |
| May 17 | Q | ... | 5.89 | 32.99 | Jan. 11 | Q | 6.5 | 5 14 3.28 | 117 30 27.99 |
| | | | | | Feb. 13 | Q | 6.0 | 3.10 | 28.46 |
| | | | | | Means... | 6.2 | | 5 14 3.19 | 117 30 28.23 |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|---------------------------|-----------|-------|-------------------------------|---------------------------------|----------------|-----------|------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| B.A.C. 1656. | | | | | B.A.C. 1699. | | | | |
| Jan. 12 | Q | ... | 5 14 26.05 | 81 42 22.92 | Feb. 10 | Q | 7.3 | 5 19 47.71 | 74 4 40.01 |
| Σ 697. (2nd star.) | | | | | B.A.C. 1709. | | | | |
| Jan. 20 | Q | 8.0 | 5 15 49.50 | 74 5 23.55 | Jan. 11 | Q | 7.0 | 5 21 9.90 | 60 55 25.21 |
| III Tauri. (2nd star.) | | | | | Feb. 2 | Q | 6.5 | 9.88 | 24.88 |
| Jan. 23 | Q | 6.0 | 5 16 36.34 | 72 44 39.02 | Means... | 6.7 | 5 21 9.89 | 60 55 25.05 | |
| β Tauri. | | | | | Piazzi v. 109. | | | | |
| Jan. 22 | Q | ... | 5 17 49.39 | 61 30 33.50 | Feb. 13 | Q | 7.0 | 5 22 16.99 | 98 29 19.87 |
| 31 | Q | ... | 49.46 | 32.95 | B.A.C. 1711. | | | | |
| May 18 | Q | ... | 49.37 | 32.23 | Jan. 12 | Q | ... | 5 22 17.25 | 69 33 24.72 |
| 21 | Q | ... | 49.36 | 32.87 | Feb. 19 | Q | ... | 17.22 | 26.43 |
| 25 | Q | ... | ..... | 34.38 | Means... | ... | 5 22 17.24 | 69 33 25.58 | |
| June 21 | Q | ... | 49.41 | 32.76 | A Orionis. | | | | |
| 22 | Q | ... | 49.35 | 31.40 | Jan. 23 | Q | 5.5 | 5 23 36.89 | 84 9 25.53 |
| 25 | Q | ... | 49.29 | 34.81 | Feb. 21 | Q | ... | 36.83 | 28.14 |
| July 9 | Q | ... | 49.35 | 34.77 | Means... | 5.5 | 5 23 36.86 | 84 9 26.84 | |
| Means... | ... | | 5 17 49.37 | 61 30 33.30 | 119 Tauri. | | | | |
| 115 Tauri. | | | | | Feb. 23 | Q | ... | 5 24 21.58 | 71 30 30.46 |
| Dec. 28 | Q | ... | 5 19 21.10 | 72 9 22.69 | δ Orionis. | | | | |
| Groombridge 944. | | | | | Jan. 20 | Q | ... | 5 25 9.60 | 90 24 3.34 |
| Feb. 12 | Q | 6.5 | ..... | 4 52 55.96 | Feb. 3 | Q | ... | 9.70 | 3.75 |
| 17 | Q | ... | ..... | 55.28 | 7 | Q | ... | 9.61 | 5.67 |
| 27 | Q | ... | ..... | 56.67 | May 21 | Q | ... | 9.78 | ..... |
| Means... | 6.5 | ..... |  | 4 52 55.97 | Means... | ... | 5 25 9.67 | 90 24 4.25 | |
| Groombridge 944 S.P. | | | | | α Leporis. | | | | |
| June 27 | Q | ... | ..... | -4 52 54.54 | Jan. 22 | Q | ... | 5 26 49.29 | 107 55 13.15 |
| July 11 | Q | ... | ..... | 51.92 | Feb. 12 | Q | .. | 49.17 | 10.94 |
| 21 | Q | ... | ..... | 51.40 | Mar. 12 | Q | ... | 49.37 | 13.45 |
| 30 | Q | ... | ..... | 53.19 | Means... | ... | 5 26 49.28 | 107 55 12.51 | |
| Mean... | .. | | | -4 52 52.76 | | | | | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-------------------|-----------|------|-------------------------------|---------------------------------|---------------|-----------|------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| B.A.C. 1751. | | | | | B.A.C. 1811. | | | | |
| Jan. 25 | Q | ... | ..... | 24 22 50.06 | Jan. 22 | Q | ... | 5 37 19.59 | 71 21 28.40 |
| <i>Reflexion.</i> | | | | | B.A.C. 1816. | | | | |
| Jan. 25 | Q | ... | ..... | 24 22 52.00 | Feb. 7 | Q | 7.0 | 5 37 57.54 | 86 3 4.74 |
| ε Orionis. | | | | | 133 Tauri. | | | | |
| Feb. 27 | Q | ... | 5 29 24.89 | 91 17 25.19 | Jan. 12 | Q | ... | 5 40 7.07 | 76 9 7.94 |
| May 25 | Q | ... | ..... | 25.17 | κ Orionis. | | | | |
| Means... | ... | ... | 5 29 24.89 | 91 17 25.18 | Mar. 2 | Q | ... | 5 41 24.04 | 99 43 11.61 |
| ζ Tauri. | | | | | 6 | Q | ... | 24.15 | 10.60 |
| Feb. 23 | Q | ... | 5 29 38.28 | 68 56 32.30 | 12 | Q | ... | 24.19 | 10.76 |
| B.A.C. 1789. | | | | | 14 | Q | ... | 24.08 | 11.83 |
| Feb. 2 | Q | ... | 5 32 50.66 | 93 38 30.80 | Means... | ... | ... | 5 41 24.12 | 99 43 11.20 |
| 126 Tauri. | | | | | B.A.C. 1853. | | | | |
| Jan. 11 | Q | 6.3 | 5 33 33.09 | 73 32 19.55 | Jan. 11 | Q | 7.5 | 5 43 10.88 | 75 35 53.31 |
| ζ Orionis. | | | | | Feb. 2 | Q | 7.0 | 10.85 | 53.90 |
| Jan. 23 | Q | ... | 5 33 59.93 | 92 0 58.64 | Means... | 7.2 | 5 43 10.87 | 75 35 53.61 | |
| α Columbæ. | | | | | B.A.C. 1857. | | | | |
| Jan. 6 | Q | ... | 5 34 47.97 | 124 8 52.65 | Jan. 20 | Q | 7.0 | 5 43 47.94 | 56 7 16.23 |
| Mar. 12 | Q | ... | 47.76 | 52.74 | B.A.C. 1860. | | | | |
| Means... | ... | ... | 5 34 47.87 | 124 8 52.70 | Jan. 6 | Q | ... | 5 44 17.75 | 113 0 51.55 |
| B.A.C. 1801. | | | | | Feb. 28 | Q | 5.7 | 17.71 | 52.36 |
| Feb. 10 | Q | 6.7 | 5 35 11.33 | 66 51 46.29 | Means... | 5.7 | 5 44 17.73 | 113 0 51.96 | |
| δ Orionis. | | | | | 56 Orionis. | | | | |
| Jan. 20 | Q | 6.0 | 5 35 32.93 | 88 35 35.19 | Jan. 23 | Q | 6.0 | 5 45 29.01 | 88 10 50.36 |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-------------------|-----------|------|-------------------------------|---------------------------------|-----------------------|-----------|------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| <i>α</i> Orionis. | | | | | 60 Orionis. | | | | |
| Jan. 12 | Q | ... | 5 47 55.08 | 82 37 12.78 | Feb. 2 | Q | 6.0 | 5 51 56.12 | 89 27 43.36 |
| 16 | Q | ... | ..... | 14.67 | B.A.C. 1918. | | | | |
| 22 | Q | ... | 54.98 | 13.48 | Feb. 19 | Q | ... | 5 52 35.20 | 62 26 18.33 |
| 24 | Q | ... | 55.08 | 14.45 | Groombridge 1004. | | | | |
| Feb. 17 | Q | ... | 55.07 | 13.70 | Jan. 31 | Q | ... | ..... | 3 14 19.96 |
| 21 | Q | ... | ..... | 14.30 | Feb. 28 | Q | 6.5 | ..... | 19.24 |
| 23 | Q | ... | 55.12 | 13.79 | Mar. 2 | Q | ... | ..... | 21.02 |
| June 9 | Q | ... | ..... | 15.64 | Means... | 6.5 | ..... | 3 14 20.07 | |
| July 9 | Q | ... | 55.20 | 17.26 | Groombridge 1004 S.P. | | | | |
| 11 | Q | ... | 55.15 | ..... | June 25 | Q | ... | ..... | -3 14 18.96 |
| Means... | ... | ... | 5 47 55.10 | 82 37 14.45 | 29 | M | ... | ..... | 18.75 |
| B.A.C. 1893. | | | | | Mean... | ... | ..... | -3 14 18.86 | |
| Jan. 11 | Q | 7.0 | 5 49 6.00 | 80 30 47.21 | 1 Geminorum. | | | | |
| <i>β</i> Aurigæ. | | | | | Jan. 11 | Q | 5.7 | 5 55 58.46 | 66 43 57.00 |
| Jan. 25 | Q | 7.0 | ..... | 45 4 13.37 | 23 | Q | 6.0 | 58.53 | 57.92 |
| <i>Reflexion.</i> | | | | | Feb. 23 | Q | ... | 58.54 | 58.85 |
| Jan. 25 | Q | ... | ..... | 45 4 12.93 | Means... | 5.8 | 5 55 58.51 | 66 43 57.92 | |
| <i>θ</i> Aurigæ. | | | | | Piazzi v. 317. | | | | |
| Jan. 20 | Q | ... | 5 50 34.98 | 52 48 2.95 | Jan. 20 | Q | 8.0 | 5 57 29.60 | 74 32 45.94 |
| Feb. 12 | Q | ... | ..... | 1.08 | Σ 838. | | | | |
| Mar. 13 | Q | ... | ..... | 2.83 | (2nd star.) | | | | |
| 14 | Q | ... | 34.93 | 0.37 | Jan. 22 | Q | ... | 5 58 14.14 | 89 7 38.47 |
| Means... | ... | ... | 5 50 34.96 | 52 48 1.81 | Feb. 17 | Q | ... | 13.98 | 41.47 |
| <i>Reflexion.</i> | | | | | Mar. 6 | Q | ... | 14.15 | 38.74 |
| Feb. 12 | Q | ... | ..... | 52 48 1.70 | Means... | ... | 5 58 14.09 | 89 7 39.56 | |
| 13 | Q | ... | ..... | 5.36 | 17 Leporis. | | | | |
| Mean... | ... | ... | ..... | 52 48 3.53 | Feb. 21 | Q | 5.0 | 5 59 0.34 | 106 28 40.86 |
| B.A.C. 1907. | | | | | | | | | |
| Feb. 7 | Q | ... | 5 51 20.88 | 77 12 27.73 | | | | | |
| Mar. 6 | Q | ... | 20.87 | 26.78 | | | | | |
| Means... | ... | ... | 5 51 20.88 | 77 12 27.26 | | | | | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-------------------|-----------|-----------|-------------------------------|---------------------------------|-------------------|-----------|------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| ν Orionis. | | | | | 2 Lynceis. | | | | |
| Jan. 16 | Q | ... | ..... | 75 13 6.62 | Feb. 12 | Q | ... | ..... | 30 56 46.01 |
| 24 | Q | ... | 5 59 55.28 | 5.89 | 13 | Q | ... | ..... | 45.01 |
| 25 | Q | ... | 55.20 | 5.83 | Mean... | ... | ..... | 30 56 45.51 | |
| Mar. 8 | Q | ... | ..... | 6.65 | <i>Reflexion.</i> | | | | |
| 14 | Q | ... | 55.14 | 4.73 | Feb. 12 | Q | ... | ..... | 30 56 42.20 |
| Means... | ... | ... | 5 59 55.21 | 75 13 5.94 | 13 | Q | ... | ..... | 43.51 |
| B.A.C. 1961. | | | | | Mean... | ... | ..... | 30 56 42.86 | |
| Feb. 2 | Q | ... | 6 0 35.39 | 101 9 38.78 | k^1 Orionis. | | | | |
| 6 Geminorum. | | | | | Jan. 24 | Q | ... | 6 8 13.27 | 77 24 34.67 |
| Jan. 23 | Q | 7.0 | 6 4 11.64 | 67 3 52.56 | Mar. 6 | Q | ... | 13.37 | 34.15 |
| Mar. 2 | Q | ... | 11.85 | 53.70 | Means... | ... | 6 8 13.32 | 77 24 34.41 | |
| Means... | 7.0 | 6 4 11.75 | 67 3 53.13 | | B.A.C. 2021. | | | | |
| f^1 Orionis. | | | | | Jan. 25 | Q | ... | 6 9 55.89 | 54 44 36.95 |
| Jan. 22 | Q | ... | 6 4 19.64 | 73 50 32.74 | 10 Geminorum. | | | | |
| B.A.C. 1997. | | | | | Jan. 23 | Q | 7.0 | 6 10 44.61 | 66 20 54.25 |
| Jan. 11 | Q | 6.0 | 6 5 50.98 | 116 27 17.03 | 11 Geminorum. | | | | |
| Feb. 28 | Q | 6.0 | 51.04 | 13.32 | Feb. 17 | Q | ... | 6 11 9.95 | 66 28 52.48 |
| Means... | 6.0 | 6 5 51.01 | 116 27 15.18 | | 6 Monocerotis. | | | | |
| η Geminorum. | | | | | Mar. 2 | Q | ... | 6 11 17.31 | 100 40 40.16 |
| Jan. 31 | Q | ... | 6 6 47.36 | 67 27 26.72 | μ Geminorum. | | | | |
| Feb. 2 | Q | ... | 47.36 | 26.17 | Jan. 20 | Q | ... | 6 14 51.20 | 67 25 13.90 |
| 19 | Q | ... | 47.39 | 25.95 | 24 | Q | ... | 51.22 | 12.84 |
| 23 | Q | ... | 47.35 | 26.67 | Feb. 2 | Q | ... | 51.19 | 14.69 |
| Mar. 5 | Q | ... | 47.33 | 25.83 | 19 | Q | ... | 51.26 | 14.64 |
| Means... | ... | 6 6 47.36 | 67 27 26.27 | | Mar. 8 | Q | ... | ..... | 14.18 |
| B.A.C. 2005. | | | | | 14 | Q | ... | 51.28 | 13.51 |
| Feb. 7 | Q | 7.0 | 6 6 59.98 | 73 55 42.73 | Means... | ... | 6 14 51.23 | 67 25 13.96 | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|------------------------------|----------------|------------------------|-------------------------------|---------------------------------|---|----------------|------------------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| <i>β</i> Canis Majoris. | | | | | <i>γ</i> Geminorum. | | | | |
| Jan. 25 | Q | ... | 6 16 47 ⁹ 6 | 107 53 26 ⁶ 8 | Jan. 16 | Q | ... | ..... | 73 29 21 ⁶ 5 |
| Feb. 7 | Q | ... | 48 ⁰ 7 | 31 ¹ 3 | 24 | Q | ... | 6 29 58 ¹ 8 | 22 ⁹ 2 |
| 23 | Q | ... | 47 ⁹ 3 | 30 ⁴ 7 | 31 | Q | ... | 58 ¹ 9 | 22 ⁹ 8 |
| 28 | Q | ... | 47 ⁹ 1 | 29 ⁵ 1 | Feb. 19 | Q | ... | 58 ² 4 | 23 ⁰ 2 |
| Mar. 6 | Q | ... | 48 ⁰ 1 | 30 ⁴ 6 | 23 | Q | ... | 58 ² 2 | 21 ⁹ 4 |
| Means... | ... | ... | 6 16 47 ⁹ 8 | 107 53 29 ⁶ 5 | 27 | Q | ... | 58 ¹ 6 | 22 ⁴ 5 |
| <i>ν</i> Geminorum. | | | | | Means... | ... | ... | 6 29 58 ² 0 | 73 29 22 ⁴ 9 |
| Feb. 17 | Q | ... | 6 21 0 ⁴ 2 | 69 42 21 ⁸ 5 | <i>ν</i> ¹ Canis Majoris. (2nd star.) | | | | |
| Mar. 8 | Q | ... | 0 ⁵ 1 | 22 ⁹ 2 | Jan. 20 | Q | 7 ⁰ | 6 30 30 ⁸ 6 | 108 33 5 ⁸ 7 |
| Means... | ... | ... | 6 21 0 ⁴ 7 | 69 42 22 ³ 9 | B.A.C. 2173. | | | | |
| <i>Σ</i> 921. (1st star.) | | | | | Jan. 23 | Q | 7 ⁵ | 6 32 7 ¹ 2 | 70 13 21 ⁹ 2 |
| Jan. 20 | Q | 7 ³ | 6 23 42 ⁴ 1 | 78 39 30 ⁸ 0 | Feb. 12 | Q | 7 ³ | 6 ⁹ 6 | 21 ⁸ 8 |
| <i>19</i> Geminorum. | | | | | Means... | 7 ⁴ | 6 32 7 ⁰ 4 | 70 13 21 ⁹ 0 | |
| Jan. 23 | Q | 7 ⁰ | 6 23 55 ¹ 0 | 74 0 21 ⁴ 3 | B.A.C. 2184. | | | | |
| Feb. 12 | Q | 6 ⁷ | 54 ⁸ 1 | 20 ⁶ 5 | Mar. 8 | Q | ... | 6 33 38 ¹ 0 | 73 28 49 ⁶ 4 |
| Means... | 6 ⁸ | 6 23 54 ⁹ 6 | 74 0 21 ⁰ 4 | | B.A.C. 2189. | | | | |
| B.A.C. 2116. | | | | | Feb. 2 | Q | 6 ⁰ | 6 34 11 ⁸ 6 | 89 22 56 ³ 9 |
| Feb. 13 | Q | 6 ⁷ | 6 24 29 ² 5 | 72 7 27 ⁴ 3 | Mar. 12 | Q | 6 ⁵ | 11 ⁸ 9 | 55 ³ 1 |
| B.A.C. 2118. | | | | | Means... | 6 ² | 6 34 11 ⁸ 8 | 89 22 55 ⁸ 5 | |
| Feb. 28 | Q | 7 ⁴ | 6 24 48 ⁰ 9 | 84 57 54 ⁷ 1 | <i>28</i> Geminorum. | | | | |
| <i>22</i> Geminorum. | | | | | Feb. 13 | Q | ... | 6 36 15 ⁸ 5 | 60 53 50 ⁵ 2 |
| Jan. 22 | Q | ... | 6 26 44 ⁸ 9 | 70 28 15 ³ 8 | Mar. 2 | Q | ... | 16 ⁰ 8 | 49 ⁴ 1 |
| B.A.C. 2140. | | | | | Means... | ... | 6 36 15 ⁹ 7 | 60 53 49 ⁹ 7 | |
| Feb. 2 | Q | 7 ⁰ | 6 27 10 ² 2 | 73 41 35 ⁷ 5 | Cephei 51 (Rev.) | | | | |
| 7 | Q | 7 ⁷ | 10 ⁰ 8 | 38 ³ 1 | Mar. 5 | Q | ... | ..... | 2 45 23 ⁵ 2 |
| Means... | 7 ³ | 6 27 10 ¹ 5 | 73 41 37 ⁰ 3 | | 6 | Q | ... | ..... | 24 ⁴ 3 |
| | | | | | Mean... | ... | ..... | 2 45 23 ⁹ 8 | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|--------------------------|-----------|------------|-------------------------------|---------------------------------|-------------------|-----------|------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| Cephei 51 (Hev.) S.P. | | | | | 10 Canis Majoris. | | | | |
| Aug. 23 | Q | ... | ..... | -2 45 23'06 | Feb. 2 | Q | ... | 6 39 22'40 | 120 56 4'14 |
| 24 | Q | ... | ..... | 23'72 | B.A.C. 2210. | | | | |
| Mean... | ... | ... | ..... | -2 45 23'39 | Feb. 21 | Q | ... | ..... | 12 51 37'48 |
| 57 Aurigæ S.P. | | | | | Reflexion. | | | | |
| July 14 | Q | ... | 6 37 26'53 | -41 4 20'13 | Feb. 21 | Q | ... | ..... | 12 51 34'41 |
| ξ Geminorum. | | | | | 11 Canis Majoris. | | | | |
| Jan. 25 | Q | ... | 6 37 45'91 | 76 57 44'76 | Feb. 12 | Q | ... | 6 40 44'36 | 104 17 6'64 |
| Oëltz. Arg. (S.Z.) 5589. | | | | | 28 | Q | 5'7 | 44'48 | 3'78 |
| Feb. 10 | Q | ... | 6 38 34'48 | 112 26 22'69 | Means... | 5'7 | 6 40 44'42 | 104 17 5'21 | |
| 16 Monocerotis. | | | | | 35 Geminorum. | | | | |
| Feb. 7 | Q | 6'0 | 6 39 14'05 | 81 16 24'79 | Mar. 8 | Q | ... | 6 42 51'61 | 76 26 7'42 |
| 27 | Q | ... | 13'88 | 26'18 | B.A.C. 2251. | | | | |
| Means... | 6'0 | 6 39 13'97 | 81 16 25'49 | | Jan. 20 | Q | ... | 6 45 19'46 | 121 33 3'05 |
| Sirius. | | | | | 15 Lyncis. | | | | |
| Jan. 20 | Q | ... | 6 39 14'49 | 106 32 5'01 | Feb. 17 | Q | ... | ..... | 31 24 22'10 |
| Feb. 25 | M | ... | 14'52 | 5'31 | Reflexion. | | | | |
| Mar. 17 | Q | ... | 14'34 | 4'84 | Feb. 17 | Q | ... | ..... | 31 24 22'93 |
| 27 | Q | ... | 14'56 | 3'37 | e Geminorum. | | | | |
| June 2 | Q | ... | 14'38 | 4'62 | Feb. 2 | Q | 6'0 | 6 47 5'17 | 76 39 17'12 |
| 22 | Q | ... | 14'40 | 5'87 | 19 | Q | ... | 5'01 | 17'06 |
| 23 | Q | ... | 14'42 | 3'39 | Means .. | 6'0 | 6 47 5'09 | 76 39 17'09 | |
| 26 | Q | ... | 14'39 | 6'66 | | | | | |
| 27 | Q | ... | 14'54 | 5'21 | | | | | |
| 28 | Q | ... | 14'44 | 6'14 | | | | | |
| 29 | Q | ... | 14'60 | 1'53 | | | | | |
| July 9 | Q | ... | 14'46 | 5'37 | | | | | |
| 12 | Q | ... | 14'54 | 5'19 | | | | | |
| 17 | Q | ... | 14'70 | 5'99 | | | | | |
| 31 | Q | ... | (14'25) | 5'27 | | | | | |
| Means... | ... | 6 39 14'48 | 106 32 4'92 | | | | | | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-------------------|-----------|------------|-------------------------------|---------------------------------|------------------------|-----------|------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| θ Canis Majoris. | | | | | ζ Geminorum. | | | | |
| Feb. 13 | Q | ... | 6 47 57.78 | 101 52 23.94 | Feb. 25 | M | ... | 6 56 9.57 | 69 14 11.28 |
| 25 | M | ... | 57.81 | 23.61 | B.A.C. 2306. | | | | |
| 27 | Q | ... | 57.81 | 23.44 | Feb. 12 | Q | 6.0 | 6 56 12.54 | 78 51 18.16 |
| Mar. 2 | Q | ... | 57.90 | 23.29 | 19 | Q | ... | 12.52 | 18.26 |
| 5 | Q | ... | 57.86 | 24.34 | Means... | 6.0 | 6 56 12.53 | 78 51 18.21 | |
| 6 | Q | ... | 57.74 | 24.93 | 44 Geminorum. | | | | |
| 12 | Q | ... | 57.75 | 23.12 | Feb. 21 | Q | 6.5 | 6 57 14.44 | 67 9 55.62 |
| 27 | Q | ... | 57.92 | 21.10 | γ Canis Majoris. | | | | |
| Means... | ... | ... | 6 47 57.82 | 101 52 23.47 | Feb. 13 | Q | ... | 6 57 41.68 | 105 26 14.80 |
| 17 Canis Majoris. | | | | | 27 | Q | ... | 41.76 | 16.26 |
| Feb. 28 | Q | 6.4 | 6 49 15.57 | 110 14 9.42 | 28 | Q | ... | 41.65 | 15.73 |
| B.A.C. 2271. | | | | | Mar. 2 | Q | ... | 41.81 | 15.61 |
| Feb. 10 | Q | ... | 6 49 54.74 | 71 55 26.51 | 5 | Q | ... | 41.85 | 14.96 |
| μ Canis Majoris. | | | | | Means... | ... | 6 57 41.75 | 105 26 15.47 | |
| Feb. 7 | Q | ... | 6 49 58.14 | 103 52 21.75 | W.B. (2) VI. 1846. | | | | |
| 12 | Q | 6.0 | 58.19 | 21.81 | Feb. 10 | Q | ... | 7 0 39.86 | 73 39 23.66 |
| Means... | 6.0 | 6 49 58.17 | 103 52 21.78 | 63 Aurigæ. | | | | | |
| 40 Geminorum. | | | | | Feb. 17 | Q | ... | ..... | 50 27 53.56 |
| Jan. 20 | Q | 7.0 | 6 51 11.44 | 63 54 25.73 | Reflexion. | | | | |
| 25 | Q | ... | 11.43 | 26.87 | Feb. 17 | Q | ... | ..... | 50 27 51.32 |
| 31 | Q | ... | 11.44 | 25.44 | Σ 1035. (1st star.) | | | | |
| Means... | 7.0 | 6 51 11.44 | 63 54 26.01 | Feb. 12 | | | | | |
| 41 Geminorum. | | | | | Q | 8.5 | 7 3 58.31 | 67 30 5.30 | |
| Mar. 8 | Q | ... | 6 52 33.62 | 73 44 19.64 | 48 Geminorum. | | | | |
| ε Canis Majoris. | | | | | Jan. 31 | Q | ... | 7 4 17.82 | 65 39 1.86 |
| Mar. 17 | Q | ... | 6 53 21.62 | 118 47 28.26 | | | | | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-----------------|-----------|------|-------------------------------|---------------------------------|-----------------------|-----------|-------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| B.A.C. 2356. | | | | | W.B. (2) VII. 397. | | | | |
| Feb. 7 | Q | ... | 7 4 42.45 | 84 7 33.34 | Feb. 21 | Q | 8.3 | 7 14 9.73 | 67 6 15.00 |
| | | | | | 27 | Q | 7.6 | 9.59 | 16.65 |
| 51 Geminorum. | | | | | Means... | | | | |
| Feb. 2 | Q | ... | 7 5 40.53 | 73 37 0.15 | | | 8.0 | 7 14 9.66 | 67 6 15.83 |
| 13 | Q | 6.0 | 40.59 | 37 0.65 | B.A.C. 2433. | | | | |
| 25 | M | ... | 40.60 | 37 0.19 | Feb. 17 | Q | ... | 7 15 10.76 | 89 34 20.37 |
| Mar. 14 | Q | ... | 40.59 | 36 58.05 | B.A.C. 2432. | | | | |
| 17 | Q | ... | 40.58 | 36 58.52 | Feb. 10 | Q | ... | 7 15 17.20 | 71 28 20.61 |
| 27 | Q | ... | 40.52 | 37 0.27 | B.A.C. 2437. | | | | |
| Means... | 6.0 | | 7 5 40.57 | 73 36 59.64 | Feb. 2 | Q | 6.5 | 7 15 51.01 | 95 43 46.31 |
| 23 Monocerotis. | | | | | B.A.C. 2439. | | | | |
| Feb. 21 | Q | 7.3 | 7 6 27.10 | 90 2 5.88 | Feb. 28 | Q | ... | ..... | 21 15 57.20 |
| 24 Monocerotis. | | | | | Mar. 2 | Q | ... | ..... | 57.75 |
| Mar. 5 | Q | 7.3? | 7 8 28.09 | 89 55 51.80 | Mean... | ... | ..... | 21 15 57.48 | |
| B.A.C. 2387. | | | | | <i>Reflexton.</i> | | | | |
| Feb. 10 | Q | ... | 7 9 3.30 | 73 37 14.32 | Feb. 28 | Q | ... | ..... | 21 15 57.58 |
| 14 | Q | ... | 3.51 | 13.91 | Mar. 2 | Q | ... | ..... | 56.96 |
| Means... | ... | | 7 9 3.41 | 73 37 14.12 | Mean... | ... | ..... | 21 15 57.27 | |
| λ Geminorum. | | | | | 1 Canis Minoris. | | | | |
| Jan. 29 | Q | ... | 7 10 23.97 | 73 13 14.13 | Feb. 13 | Q | ... | 7 17 31.30 | 78 4 17.11 |
| δ Geminorum. | | | | | Groombridge 1119. | | | | |
| Feb. 25 | M | ... | 7 12 7.06 | 67 46 27.88 | Jan. 1 | Q | ... | ..... | 0 59 16.59 |
| Mar. 27 | Q | ... | 7.08 | 25.34 | Mar. 12 | Q | 7.4 | ..... | 16.86 |
| Apr. 20 | Q | ... | 7.03 | 25.16 | Means... | 7.4 | ..... | 0 59 16.73 | |
| Means... | ... | | 7 12 7.06 | 67 46 26.13 | Groombridge 1119 S.P. | | | | |
| 56 Geminorum. | | | | | July 20 | M | 6.5 | ..... | —0 59 15.26 |
| Feb. 12 | Q | 6.0 | 7 14 2.25 | 69 18 21.80 | | | | | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | | | Mean N.P.D. 1866, Jan. 1. | | | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | | | Mean N.P.D. 1866, Jan. 1. | | |
|-------------------------------------|-----------|------|-------------------------------|----|-------|---------------------------------|----|-------|------------------------------|-----------|------|-------------------------------|----|----------|---------------------------------|----|-------|
| | | | h. | m. | s. | ° | ' | " | | | | h. | m. | s. | ° | ' | " |
| ε Canis Minoris. | | | | | | | | | 67 Geminorum. | | | | | | | | |
| Jan. 29 | Q | ... | 7 | 18 | 19.49 | 80 | 27 | 43.05 | Feb. 27 | Q | 7.0 | 7 | 25 | 46.30 | 74 | 4 | 35.13 |
| Feb. 14 | Q | ... | | | 19.41 | | | 43.82 | 68 Geminorum. | | | | | | | | |
| Means... | ... | ... | 7 | 18 | 19.45 | 80 | 27 | 43.44 | Castor. | | | | | | | | |
| β Canis Minoris. | | | | | | | | | Jan. 29 | Q | ... | 7 | 25 | 57.18 | 73 | 53 | 17.73 |
| Feb. 19 | Q | ... |  |  | ..... | 81 | 26 | 37.31 | Reflexion. | | | | | | | | |
| Mar. 5 | Q | ... | 7 | 19 | 52.84 | | | 35.02 | Feb. 14 | Q | ... | 7 | 26 | 2.80 | 57 | 49 | 14.36 |
| 17 | Q | ... | | | 52.96 | | | 34.93 | Mar. 27 | Q | ... | | | 2.74 | | | 14.19 |
| Means... | ... | ... | 7 | 19 | 52.90 | 81 | 26 | 35.75 | June 27 | Q | ... | | | 2.87 | | | 14.58 |
| | | | | | | | | | July 4 | Q | ... | | | 2.83 |  |  | ..... |
| Feb. 19 | Q | ... |  |  | ..... | 81 | 26 | 36.27 | Means... | ... | ... | 7 | 26 | 2.81 | 57 | 49 | 14.38 |
| η Canis Minoris. | | | | | | | | | n¹ Puppis. | | | | | | | | |
| Feb. 7 | Q | ... | 7 | 20 | 49.71 | 82 | 47 | 15.41 | Feb. 2 | Q | ... | 7 | 28 | 38.83 | 113 | 10 | 58.83 |
| 12 | Q | 6.0 | | | 49.42 | | | 13.52 | n² Puppis. | | | | | | | | |
| Means... | 6.0 | ... | 7 | 20 | 49.57 | 82 | 47 | 14.47 | Feb. 12 | Q | 7.0 | 7 | 28 | 39.45 | 113 | 11 | 4.34 |
| b¹ Geminorum. | | | | | | | | | B.A.C. 2499. | | | | | | | | |
| Feb. 21 | Q | 6.3 | 7 | 20 | 59.28 | 61 | 36 | 30.37 | Feb. 21 | Q | 7.3 | 7 | 29 | 12.74 | 69 | 32 | 40.05 |
| b² Geminorum. | | | | | | | | | B.A.C. 2503. | | | | | | | | |
| Mar. 14 | Q | ... | 7 | 21 | 28.38 | 61 | 48 | 35.07 | Feb. 17 | Q | ... | 7 | 29 | 26.63 | 83 | 50 | 36.45 |
| B.A.C. 2472. | | | | | | | | | p Puppis. | | | | | | | | |
| Feb. 17 | Q | ... | 7 | 22 | 19.70 | 61 | 48 | 54.04 | Feb. 7 | Q | ... | 7 | 30 | 0.00 | 118 | 4 | 29.50 |
| 6 Canis Minoris. | | | | | | | | | 13 | Q | 5.7 | | | 29.59.92 | | | 30.62 |
| Feb. 2 | Q | 6.0 | 7 | 22 | 20.17 | 77 | 43 | 7.74 | Means... | 5.7 | ... | 7 | 29 | 59.96 | 118 | 4 | 30.06 |
| δ¹ Canis Minoris. | | | | | | | | | 25 Monocerotis. | | | | | | | | |
| Feb. 13 | Q | 6.0 | 7 | 25 | 8.09 | 87 | 48 | 14.38 | Mar. 14 | Q | ... | 7 | 30 | 36.97 | 93 | 48 | 49.87 |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
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| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| B.A.C. 2514. | | | | | Pollux. | | | | |
| Feb. 10 | Q | 6.5 | 7 31 6.02 | 65 28 36.96 | Feb. 19 | Q | ... | | 61 39 13.16 |
| | | | | | June 26 | Q | ... | 7 37 6.74 | 12.64 |
| | | | | | 27 | Q | ... | 6.63 | 12.27 |
| | | | | | July 31 | Q | ... | ..... | 12.49 |
| | | | | | Means... | ... | ... | 7 37 6.69 | 61 39 12.64 |
| | | | | | Reflexion. | | | | |
| | | | | | Feb. 19 | Q | ... | ..... | 61 39 14.73 |
| | | | | | 1 Puppis. | | | | |
| | | | | | Feb. 2 | Q | ... | 7 38 7.70 | 118 5 36.82 |
| | | | | | π Geminorum. | | | | |
| | | | | | Feb. 17 | Q | ... | 7 38 51.99 | 56 15 30.71 |
| | | | | | B.A.C. 2565. | | | | |
| | | | | | Feb. 7 | Q | 6.0 | 7 38 56.20 | 114 21 12.16 |
| | | | | | Mar. 12 | Q | 6.7 | 56.17 | 11.10 |
| | | | | | Means... | 6.3 | 7 38 56.19 | 114 21 11.63 | |
| | | | | | 5 Puppis. | | | | |
| | | | | | Feb. 12 | Q | 6.0 | 7 41 40.09 | 101 51 57.61 |
| | | | | | B.A.C. 2592. | | | | |
| | | | | | Feb. 10 | Q | 6.3 | 7 42 25.36 | 56 25 53.46 |
| | | | | | B.A.C. 2600. | | | | |
| | | | | | Feb. 2 | Q | ... | 7 43 27.86 | 121 17 3.54 |
| | | | | | ξ Argûs. | | | | |
| | | | | | Feb. 14 | Q | ... | 7 43 39.51 | 114 31 30.93 |
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| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|---------------------|-----------|------------|-------------------------------|---------------------------------|---------------------|-----------|-----------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| 8 Puppis. | | | | | W.B. (2) VII. 1527. | | | | |
| Feb. 13 | Q | 6.0 | 7 45 24.75 | 102 28 43.59 | Feb. 21 | Q | 7.5 | 7 55 44.22 | 69 17 16.61 |
| 17 | Q | ... | 25.01 | 43.20 | | | | | |
| Mar. 13 | Q | 7.0 | 25.02 | 42.40 | B.A.C. 2679. | | | | |
| Means... | 6.5 | 7 45 24.93 | 102 28 43.06 | | Mar. 14 | Q | ... | 7 55 54.95 | 79 41 47.74 |
| 10 Puppis. | | | | | B.A.C. 2683. | | | | |
| Feb. 27 | Q | 6.0 | 7 46 8.99 | 104 30 14.69 | Feb. 7 | Q | 6.5 | 7 57 0.41 | 70 46 55.01 |
| | | | | | 28 | Q | 7.0 | 0.57 | 54.58 |
| * | | | | | Means... | 6.7 | 7 57 0.49 | 70 46 54.80 | |
| Feb. 7 | Q | 8.0 | 7 48 22.78 | 68 49 53.15 | Σ 1183. | | | | |
| 21 | Q | 7.8 | 22.66 | 50.37 | (2nd star.) | | | | |
| 28 | Q | ... | 22.50 | 52.33 | Mar. 2 | Q | ... | 8 0 0.13 | 98 51 43.18 |
| Means... | 7.9 | 7 48 22.65 | 68 49 51.95 | | W.B. (2) VII. 1646. | | | | |
| W.B. (2) VII. 1371. | | | | | Feb. 13 | Q | 7.7 | 8 0 14.54 | 64 3 41.90 |
| Feb. 12 | Q | 7.3 | 7 49 13.25 | 68 40 47.57 | 15 Argûs. | | | | |
| W.B. (2) VII. 1408. | | | | | Feb. 12 | Q | ... | 8 1 50.22 | 113 55 10.97 |
| Mar. 12 | Q | 8.3 | 7 50 54.56 | 59 11 26.88 | 21 | Q | ... | 50.21 | 10.80 |
| 14 Canis Minoris. | | | | | 28 | Q | ... | 50.30 | 11.39 |
| Feb. 19 | Q | ... | 7 51 23.74 | 87 25 13.29 | Mar. 12 | Q | ... | 50.17 | 10.99 |
| W.B. (2) VII. 1465. | | | | | 13 | Q | ... | 50.39 | 9.36 |
| Feb. 13 | Q | 7.4 | 7 53 28.79 | 65 43 15.43 | Means... | ... | 8 1 50.26 | 113 55 10.70 | |
| Pinzzi vii. 280. | | | | | B.A.C. 2731. | | | | |
| Feb. 10 | Q | 7.7 | 7 54 16.83 | 69 53 40.57 | Feb. 10 | Q | ... | 8 2 21.93 | 72 35 31.56 |
| 6 Cancri. | | | | | B.A.C. 2739. | | | | |
| Feb. 12 | Q | 6.0 | 7 55 16.98 | 61 49 58.45 | Feb. 14 | Q | ... | 8 3 20.80 | 105 51 27.15 |
| 14 | Q | .. | 17.14 | 59.29 | B.A.C. 2737. | | | | |
| Mar. 6 | Q | ... | 16.99 | 57.08 | Mar. 14 | Q | 7.0 | 8 3 27.05 | 74 58 35.59 |
| 13 | Q | 5.8 | 17.10 | 56.24 | | | | | |
| Means... | 5.9 | 7 55 17.05 | 61 49 57.77 | | | | | | |

| Day, 1860. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|---------------------|-----------|------------|-------------------------------|---------------------------------|-------------------------------|-----------|------------|-------------------------------|---------------------------------|
| | | | h. m. s. | o. / " | | | | h. m. s. | o. / " |
| Σ 1198. (2nd star.) | | | | | <i>d</i> ¹ Cancri. | | | | |
| Feb. 27 | Q | ... | 8 4 20.89 | 88 20 13.67 | Feb. 17 | Q | ... | 8 15 41.26 | 71 14 21.10 |
| | | | | | 28 | Q | 6.5 | 41.39 | 23.48 |
| ζ Cancri. | | | | | Mar. 6 | Q | ... | 41.35 | 22.55 |
| Feb. 25 | M | ... | 8 4 31.46 | 71 57 4.21 | Means... | 6.5 | 8 15 41.33 | 71 14 22.38 | |
| W.B. (2) VIII. 81. | | | | | Groombridge 1418. | | | | |
| Feb. 17 | Q | ... | 8 5 41.66 | 61 49 13.83 | Feb. 23 | Q | 7.3 | ..... | 4 28 56.39 |
| | | | | | Mar. 13 | Q | 7.7 | ..... | 54.88 |
| B.A.C. 2761. | | | | | 14 | Q | ... | ..... | 54.61 |
| Feb. 23 | Q | 6.5 | 8 6 53.94 | 76 32 54.10 | Means... | 7.5 | ..... | 4 28 55.29 | |
| Mar. 6 | Q | ... | 54.06 | 53.33 | Groombridge 1418 S.P. | | | | |
| Means... | 6.5 | 8 6 54.00 | 76 32 53.72 | | Oct. 8 | Q | 7.4 | ..... | -4 28 52.65 |
| W.B. (2) VIII. 132. | | | | | 21 Cancri. | | | | |
| Feb. 13 | Q | 8.0 | 8 7 46.18 | 54 2 29.93 | Feb. 13 | Q | 7.0 | 8 16 35.15 | 78 56 19.27 |
| β Cancri. | | | | | W.B. (2) VIII. 364. | | | | |
| Mar. 2 | Q | ... | 8 9 14.76 | 80 24 14.27 | Mar. 12 | Q | 7.4 | 8 16 58.12 | 65 37 33.38 |
| ✱ | | | | | Lalande 16452. | | | | |
| Feb. 12 | Q | 8.9 | 8 10 3.72 | 69 45 9.63 | Feb. 14 | Q | 7.7 | 8 17 3.11 | 69 24 57.71 |
| W.B. (2) VIII. 218. | | | | | Mar. 2 | Q | ... | 2.90 | 58.92 |
| Feb. 10 | Q | 7.0 | 8 11 10.16 | 65 24 37.55 | Means... | 7.7 | 8 17 3.01 | 69 24 58.32 | |
| 14 | Q | 7.3 | 10.19 | 36.93 | Radcliffe 2129 S.P. | | | | |
| Means... | 7.1 | 8 11 10.18 | 65 24 37.24 | | Aug. 10 | Q | ... | ..... | -4 20 23.79 |
| B.A.C. 2791. | | | | | ν ¹ Cancri. | | | | |
| Feb. 19 | Q | ... | 8 12 47.06 | 85 38 1.25 | Feb. 12 | Q | 7.7 | 8 18 41.33 | 65 1 41.76 |
| Lalande 16350-2. | | | | | | | | | |
| Feb. 27 | Q | 7.3 | 8 14 17.64 | 69 36 59.02 | | | | | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|----------------------|-----------|------|-------------------------------|---------------------------------|------------------------|-----------|-------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| W.B. (2) VIII. 523. | | | | | γ Cancri. | | | | |
| Feb. 17 | Q | ... | 8 23 19.18 | 70 35 48.6 | Apr. 5 | Q | ..... | 68 3 7.28 | |
| B.A.C. 2854. | | | | | A ¹ Cancri. | | | | |
| Feb. 13 | Q | 7.0 | 8 23 59.75 | 70 33 45.48 | Mar. 12 | Q | 6.4 | 8 35 49.02 | 76 50 26.77 |
| 19 | Q | ... | 59.97 | 47.34 | 10 Hydræ. | | | | |
| Means... | 7.0 | | 8 23 59.86 | 70 33 46.41 | Mar. 2 | Q | ... | 8 37 55.32 | 83 50 9.77 |
| η Cancri. | | | | | ϵ Hydræ. | | | | |
| Feb. 14 | Q | 6.0 | 8 24 57.37 | 69 6 22.67 | Feb. 17 | Q | ... | 8 39 40.77 | 83 5 29.23 |
| 21 | Q | ... | 57.37 | 21.05 | 23 | Q | ... | 40.75 | 30.22 |
| 28 | Q | ... | 57.42 | 21.81 | Mar. 13 | Q | ... | 40.56 | 29.05 |
| Means... | 6.0 | | 8 24 57.39 | 69 6 21.84 | Means... | ... | | 8 39 40.69 | 83 5 29.50 |
| W.B. (2) VIII. 574. | | | | | B.A.C. 2990. | | | | |
| Feb. 12 ¹ | Q | ... | 8 25 12.34 | 74 16 24.18 | Feb. 19 | Q | ... | 8 43 4.85 | 71 30 1.31 |
| 27 | Q | 7.6 | 12.14 | 25.32 | 15 Hydræ. | | | | |
| Means... | 7.6 | | 8 25 12.24 | 74 16 24.75 | Apr. 5 | Q | ... | 8 44 59.18 | 96 40 38.01 |
| B.A.C. 2872. | | | | | Radeliffe 2210 S.P. | | | | |
| Mar. 12 | Q | 6.5 | 8 26 19.47 | 76 17 11.47 | Sept. 19 | Q | 8.8 | ..... | -4 59 28.98 |
| c^1 Cancri. | | | | | B.A.C. 3019. | | | | |
| Feb. 17 | Q | ... | 8 29 49.61 | 79 52 46.88 | Feb. 27 | Q | 8.0 | 8 46 17.47 | 75 5 11.47 |
| 28 | Q | 7.0 | 49.66 | 51.33 | Radeliffe 2218. | | | | |
| Means... | 7.0 | | 8 29 49.64 | 79 52 49.11 | Mar. 27 | Q | ... | ... | 5 17 19.57 |
| c^2 Cancri. | | | | | Radeliffe 2218 S.P. | | | | |
| Mar. 2 | Q | ... | 8 30 49.63 | 79 57 33.90 | Oct. 16 | Q | ... | ... | -5 17 18.11 |
| B.A.C. 2925. | | | | | Nov. 13 | Q | 6.5 | ..... | 17.88 |
| Feb. 19 | Q | - | 8 33 14.98 | 69 56 47.92 | Means... | 6.5 | ... | ... | -5 17 18.00 |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|----------------------|-----------|------|-------------------------------|---------------------------------|------------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| B.A.C. 3022. | | | | | 21 Hydræ. | | | | |
| Mar. 6 | Q | ... | 8 47 1'52 | 75 14 59'67 | Mar. 12 | Q | 6'3 | 9 5 48'86 | 96 33 43'46 |
| W.B. (2) VIII. 1160. | | | | | B.A.C. 3138. | | | | |
| Mar. 12 | Q | 7'4 | 8 47 29'89 | 63 4 57'48 | Feb. 27 | Q | 6'5 | 9 5 57'67 | 68 10 1'85 |
| α Cancri. | | | | | π ² Cancri. | | | | |
| Feb. 27 | Q | ... | 8 51 9'29 | 77 37 33'18 | Apr. 13 | Q | ... | 9 7 49'99 | 74 30 17'33 |
| Mar. 13 | Q | ... | 9'25 | 30'62 | | | | | |
| Means... | ... | | 8 51 9'27 | 77 37 31'90 | 38 Lyncis. | | | | |
| B.A.C. 3058. | | | | | Mar. 14 | Q | ... | ..... | 52 37 56'11 |
| Feb. 28 | Q | 7'5 | 8 51 36'56 | 71 20 44'81 | Reflexion. | | | | |
| B.A.C. 3093. | | | | | Mar. 14 | Q | ... | ..... | 52 37 59'79 |
| Feb. 27 | Q | 7'8 | 8 57 1'23 | 64 51 50'87 | 83 Cancri. | | | | |
| κ Cancri. | | | | | Mar. 16 | Q | ... | 9 11 29'88 | 71 43 39'76 |
| Mar. 16 | Q | ... | 9 0 29'09 | 78 47 40'04 | Apr. 6 | Q | ... | 29'95 | 38'72 |
| Apr. 6 | Q | ... | 29'17 | 37'23 | Means... | ... | | 9 11 29'92 | 71 43 39'24 |
| Means... | ... | | 9 0 29'13 | 78 47 38'63 | W.B. (2) IX. 287. | | | | |
| W.B. (2) IX. 71-2. | | | | | Feb. 27 | Q | 7'7 | 9 14 52'64 | 63 40 18'67 |
| Feb. 28 | Q | ... | 9 5 7'29 | 54 20 42'83 | Piazzix. 65. | | | | |
| W.B. (1) IX. 75. | | | | | Mar. 13 | Q | 7'5 | 9 16 16'91 | 85 55 40'69 |
| Mar. 2 | Q | ... | 9 5 13'83 | 96 25 59'11 | B.A.C. 3202. | | | | |
| 13 | Q | 7'7 | 13'96 | 57'15 | Mar. 2 | Q | ... | 9 16 21'66 | 81 42 47'24 |
| Means... | 7'7 | | 9 5 13'90 | 96 25 58'13 | 12 | Q | 7'0 | 21'47 | 47'84 |
| Radcliffe 2273 S.P. | | | | | Means... | 7'0 | | 9 16 21'57 | 81 42 47'54 |
| Sept. 24 | Q | 8'6 | ..... | -2 33 29'54 | | | | | |

32 *Separate Results for Mean R.A. and Mean N.P.D. of Stars*

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|---------------|-----------|------|-------------------------------|---------------------------------|---------------------|-----------|-----------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| α Hydræ. | | | | | B.A.C. 3340. | | | | |
| Mar. 16 | Q | ... | 9 21 0'15 | 98 4 45'54 | Mar. 13 | Q | ... | 9 39 28'54 | 119 35 11'15 |
| Apr. 13 | Q | ... | 0'27 | 46'04 | B.A.C. 3356. | | | | |
| Means... | ... | ... | 9 21 0'21 | 98 4 45'79 | Mar. 12 | Q | 7'7? | 9 42 39'58 | 78 15 5'97 |
| B.A.C. 3240. | | | | | 5 Sextantis. | | | | |
| Mar. 13 | Q | 7'0 | 9 22 36'93 | 91 37 16'76 | Apr. 18 | Q | ... | 9 44 1'48 | 96 45 21'47 |
| ξ Leonis. | | | | | 6 Sextantis. | | | | |
| Apr. 6 | Q | ... | 9 24 43'21 | 78 6 30'14 | Mar. 14 | Q | ... | 9 44 28'95 | 93 37 0'27 |
| B.A.C. 3255. | | | | | μ Leonis. | | | | |
| Mar. 2 | Q | ... | 9 25 27'29 | 61 2 26'93 | Apr. 13 | Q | ... | 9 45 8'26 | 63 21 51'47 |
| B.A.C. 3258. | | | | | Radcliffe 2404 S.P. | | | | |
| Mar. 14 | Q | 7'0 | 9 25 45'70 | 87 32 38'16 | Sept. 17 | Q | 6'9 | ..... | -5 26 20'29 |
| 8 Leonis. | | | | | Oct. 22 | Q | 6'4 | ..... | 20'41 |
| Mar. 12 | Q | ... | 9 29 38'61 | 72 57 48'07 | Means... | 6'6 | ..... | -5 26 20'35 | |
| B.A.C. 3292. | | | | | π Leonis. | | | | |
| Mar. 2 | Q | ... | 9 31 23'18 | 69 6 0'70 | Mar. 14 | Q | ... | 9 53 7'79 | 81 18 49'14 |
| B.A.C. 3296. | | | | | Apr. 13 | Q | ... | 7'85 | 50'83 |
| Apr. 13 | Q | ... | 9 31 24'07 | 121 34 37'89 | 14 | Q | ... | ..... | 51'36 |
| ο Leonis. | | | | | 18 | Q | ... | 7'79 | 49'58 |
| Mar. 16 | Q | ... | 9 33 59'93 | 79 29 58'61 | Means... | ... | 9 53 7'81 | 81 18 50'23 | |
| ε Leonis. | | | | | B.A.C. 3420. | | | | |
| Apr. 6 | Q | ... | 9 38 14'41 | 65 36 37'88 | Mar. 16 | Q | ... | 9 54 17'63 | 57 49 25'73 |
| B.A.C. 3333. | | | | | B.A.C. 3439. | | | | |
| Mar. 14 | Q | 7'8 | 9 38 43'13 | 68 53 42'20 | Apr. 23 | Q | ... | 9 57 55'11 | 54 20 50'11 |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | | | Mean N.P.D. 1866, Jan. 1. | | |
|-----------------------|-----------|-------|-------------------------------|-------|-------|---------------------------------|-------|-------|
| | | | h. m. s. | | | ° ' " | | |
| Regulus. | | | | | | | | |
| Mar. 14 | Q | ... | 10 | 1 | 13.99 | 77 | 22 | 44.09 |
| Apr. 18 | Q | ... | 13.99 | | | 44.37 | | |
| May 21 | Q | ... | 13.94 | | | 45.47 | | |
| Means... | ... | 10 | 1 | 13.97 | 77 | 22 | 44.64 | |
| B.A.C. 3460. | | | | | | | | |
| Apr. 13 | Q | ... | 10 | 1 | 46.88 | 70 | 48 | 43.68 |
| 17 Sextantis. | | | | | | | | |
| Apr. 14 | Q | ... | 10 | 3 | 27.99 | 97 | 45 | 3.43 |
| W.B. (2) X. 90-1. | | | | | | | | |
| Apr. 23 | Q | ... | 10 | 5 | 32.69 | 57 | 57 | 37.77 |
| Groombridge 1620. | | | | | | | | |
| Mar. 16 | Q | ... | ..... |  |  | 5 | 4 | 13.76 |
| Apr. 13 | Q | 5.6 | ..... |  |  | 14.68 | | |
| Means... | 5.6 | ..... |  |  | 5 | 4 | 14.22 | |
| Groombridge 1620 S.P. | | | | | | | | |
| Oct. 30 | Q | ... | ..... |  |  | -5 | 4 | 11.55 |
| W.B. (2) X. 220. | | | | | | | | |
| Mar. 14 | Q | ... | 10 | 11 | 44.84 | 64 | 57 | 54.09 |
| γ^1 Leonis. | | | | | | | | |
| Apr. 14 | Q | ... | ..... |  |  | 69 | 28 | 55.14 |
| 23 | Q | ... | 10 | 12 | 35.04 | 55.84 | | |
| May 21 | Q | ... | 34.80 | | | 55.90 | | |
| Means... | ... | 10 | 12 | 34.92 | 69 | 28 | 55.63 | |
| 23 Sextantis. | | | | | | | | |
| Apr. 18 | Q | ... | 10 | 14 | 6.78 | 87 | 2 | 13.16 |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | | | Mean N.P.D. 1866, Jan. 1. | | |
|--------------------|-----------|------|-------------------------------|-------|-------|---------------------------------|-------|-------|
| | | | h. m. s. | | | ° ' " | | |
| μ Hydrae. | | | | | | | | |
| Apr. 14 | Q | ... | 10 | 19 | 36.60 | 106 | 9 | 10.18 |
| 20 | Q | ... | 36.64 | | | 11.5 | | |
| Means... | ... | 10 | 19 | 36.62 | 106 | 9 | 10.85 | |
| 45 Leonis. | | | | | | | | |
| Apr. 23 | Q | ... | 10 | 20 | 34.42 | 79 | 33 | 19.91 |
| 24 | Q | ... | 34.38 | | | 20.38 | | |
| Means... | ... | 10 | 20 | 34.40 | 79 | 33 | 20.15 | |
| B.A.C. 3592. | | | | | | | | |
| Apr. 18 | Q | ... | 10 | 22 | 49.61 | 87 | 49 | 10.01 |
| ρ Leonis. | | | | | | | | |
| Apr. 21 | Q | ... | 10 | 25 | 45.14 | 80 | 0 | 15.93 |
| 23 | Q | ... | 45.28 | | | 15.39 | | |
| 24 | Q | ... | 45.26 | | | 18.09 | | |
| Means... | ... | 10 | 25 | 45.23 | 80 | 0 | 16.47 | |
| 36 Leonis Minoris. | | | | | | | | |
| Apr. 25 | Q | ... | 10 | 30 | 15.82 | 55 | 13 | 40.21 |
| B.A.C. 3638. | | | | | | | | |
| Mar. 27 | Q | ... | 10 | 30 | 56.64 | 116 | 43 | 6.44 |
| 34 Sextantis. | | | | | | | | |
| Apr. 14 | Q | ... | ..... |  |  | 85 | 43 | 5.45 |
| 17 | Q | ... | 10 | 35 | 42.23 | 3.94 | | |
| 18 | Q | ... | 42.20 | | | 1.00 | | |
| 20 | Q | ... | 42.29 | | | 1.87 | | |
| 21 | Q | ... | 42.15 | | | 3.27 | | |
| Means... | ... | 10 | 55 | 42.22 | 85 | 43 | 3.11 | |
| B.A.C. 3687. | | | | | | | | |
| Apr. 13 | Q | 7.8 | 10 | 38 | 33.80 | 81 | 46 | 54.85 |
| 23 | Q | ... | 33.65 | | | 54.58 | | |
| Means... | 7.8 | 10 | 38 | 33.73 | 81 | 46 | 54.72 | |

34 *Separate Results for Mean R.A. and Mean N.P.D. of Stars*

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|------------------------------|-----------|------|-------------------------------|---------------------------------|-------------------------------|-----------|------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| <i>l</i> Leonis. | | | | | <i>χ</i> Leonis. | | | | |
| Apr. 25 | Q | ... | 10 42 12.63 | 78 44 48.31 | Apr. 24 | Q | ... | 10 58 6.30 | 81 56 24.20 |
| May 9 | Q | ... | ..... | 47.73 | May 22 | Q | ... | 6.18 | 25.65 |
| Means... | ... | ... | 10 42 12.63 | 78 44 48.02 | Means... | ... | ... | 10 58 6.24 | 81 56 24.93 |
| B.A.C. 3720. | | | | | 52 Leonis Minoris. | | | | |
| Mar. 27 | Q | ... | 10 44 1.56 | 85 41 59.23 | Apr. 18 | Q | ... | 10 59 52.44 | 63 44 20.85 |
| Apr. 18 | Q | ... | 1.34 | 42 1.14 | 64 Leonis. | | | | |
| Means... | ... | ... | 10 44 1.45 | 85 42 0.19 | Apr. 13 | Q | ... | 11 0 29.23 | 65 57 10.53 |
| <i>δ</i> ² Hydræ. | | | | | <i>p</i> ⁶ Leonis. | | | | |
| Apr. 17 | Q | ... | 10 44 33.02 | 107 37 21.32 | Apr. 24 | Q | ... | 11 6 54.13 | 89 20 26.55 |
| 54 Leonis. | | | | | 25 | Q | 6.0 | 54.01 | 28.55 |
| Apr. 20 | Q | ... | 10 48 21.01 | 64 32 11.42 | Means... | 6.0 | 11 6 54.07 | 89 20 27.55 | |
| 23 | Q | 6.0 | 21.12 | 11.72 | 8 Leonis. | | | | |
| Means... | 6.0 | ... | 10 48 21.07 | 64 32 11.57 | Apr. 17 | Q | ... | 11 6 58.61 | 68 44 33.86 |
| 56 Leonis. | | | | | 18 | Q | ... | 58.64 | 32.18 |
| Apr. 13 | Q | 6.6 | 10 49 4.14 | 83 6 0.43 | 20 | Q | ... | 58.72 | 33.61 |
| W.B. (2) X. 995. | | | | | May 2 | Q | ... | 58.73 | 33.32 |
| Apr. 24 | Q | ... | 10 50 6.43 | 68 8 37.62 | 4 | Q | ... | 58.69 | 34.16 |
| <i>d</i> Leonis. | | | | | Means... | ... | ... | 11 6 58.68 | 68 44 33.43 |
| Apr. 21 | Q | ... | 10 53 38.41 | 85 39 47.64 | 8 Crateris. | | | | |
| 25 | Q | ... | 38.35 | 48.95 | Apr. 13 | Q | ... | 11 12 38.51 | 104 3 15.19 |
| May 22 | Q | ... | 38.28 | 49.53 | 21 | Q | ... | 38.66 | 13.90 |
| Means... | ... | ... | 10 53 38.35 | 85 39 48.71 | May 3 | Q | ... | 38.54 | 12.78 |
| B.A.C. 3786. | | | | | Means... | ... | ... | 11 12 38.57 | 104 3 13.96 |
| Mar. 27 | Q | ... | 10 57 28.31 | 90 33 22.50 | <i>σ</i> Leonis. | | | | |
| | | | | | Apr. 24 | Q | ... | 11 14 13.64 | 83 14 11.37 |
| | | | | | 25 | Q | ... | 13.61 | 13.31 |
| | | | | | Means... | ... | ... | 11 14 13.63 | 83 14 12.34 |

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| | | | h. m. s. | | | ° ' " | | |
| γ Crateris. | | | | | | | | |
| Apr. 20 | Q | ... | 11 18 11.52 | | | 106 56 53.40 | | |
| May 4 | Q | ... | 11.29 | | | 52.67 | | |
| Means... | | ... | 11 18 11.41 | | | 106 56 53.04 | | |
| τ Leonis. | | | | | | | | |
| May 2 | Q | ... | 11 21 2.72 | | | 86 24 21.08 | | |
| 3 | Q | ... | 2.63 | | | 19.91 | | |
| Means... | | ... | 11 21 2.68 | | | 86 24 20.50 | | |
| B.A.C. 3901. | | | | | | | | |
| Apr. 13 | Q | 6.8 | 11 21 2.90 | | | 90 57 46.57 | | |
| Radcliffe 2684 S.P. | | | | | | | | |
| Nov. 19 | Q | 7.4 | ..... |  |  | -4 33 18.27 | | |
| e Leonis. | | | | | | | | |
| May 22 | Q | ... | 11 23 28.22 | | | 92 15 51.04 | | |
| 23 | Q | ... | 28.14 | | | 51.48 | | |
| Means... | | ... | 11 23 28.18 | | | 92 15 51.26 | | |
| Lalande 21941. | | | | | | | | |
| Apr. 24 | Q | 7.4 | 11 26 29.32 | | | 69 34 49.17 | | |
| May 4 | Q | 7.5 | 29.33 | | | 47.54 | | |
| Means... | | 7.5 | 11 26 29.33 | | | 69 34 48.36 | | |
| 90 Leonis. | | | | | | | | |
| Apr. 13 | Q | 7.5 | 11 27 43.95 | | | 72 27 46.75 | | |
| υ Leonis. | | | | | | | | |
| Apr. 17 | Q | ... | 11 30 5.32 | | | 90 5 2.43 | | |
| 20 | Q | ... | 5.34 | | | 2.44 | | |
| May 3 | Q | ... | 5.30 | | | 3.99 | | |
| 21 | Q | ... | | | | 1.93 | | |
| 22 | Q | ... | 5.30 | | | | | |
| 23 | Q | ... | 5.26 | | | 3.17 | | |
| Means... | | ... | 11 30 5.30 | | | 90 5 2.79 | | |

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| | | | h. m. s. | | | ° ' " | | |
| 92 Leonis. | | | | | | | | |
| Apr. 24 | Q | 6.6 | 11 33 48.94 | | | 67 54 11.11 | | |
| May 4 | Q | 6.0 | 48.85 | | | 11.94 | | |
| 7 | Q | ... | 48.81 | | | 9.41 | | |
| Means... | | 6.3 | 11 33 48.87 | | | 67 54 10.82 | | |
| W.B. (2) XI. 746. | | | | | | | | |
| Apr. 25 | Q | ... | 11 38 23.96 | | | 69 21 55.56 | | |
| B.A.C. 3994. (North Star.) | | | | | | | | |
| Apr. 18 | Q | ... | 11 41 59.36 | | | 116 0 15.96 | | |
| β Leonis. | | | | | | | | |
| Apr. 17 | Q | ... | 11 42 13.37 | | | 74 40 44.52 | | |
| 24 | Q | ... | 13.41 | | | 43.71 | | |
| May 2 | Q | ... | 13.42 | | | 44.78 | | |
| 3 | Q | ... | 13.32 | | | 44.82 | | |
| 22 | Q | ... | 13.40 | | | 44.18 | | |
| 23 | Q | ... | 13.29 | | | 43.23 | | |
| Means... | | ... | 11 42 13.37 | | | 74 40 44.21 | | |
| β Virginis. | | | | | | | | |
| Apr. 25 | Q | ... | 11 43 42.88 | | | 87 28 48.52 | | |
| B.A.C. 4003. | | | | | | | | |
| Apr. 13 | Q | 7.3 | 11 43 51.37 | | | 116 31 57.67 | | |
| May 7 | Q | ... | 51.29 | | | 59.71 | | |
| Means... | | 7.3 | 11 43 51.33 | | | 116 31 58.69 | | |
| Σ 1575. (2nd star.) | | | | | | | | |
| May 4 | Q | 7.6 | 11 45 4.61 | | | 80 25 22.24 | | |
| ο Leonis. | | | | | | | | |
| Apr. 23 | Q | 6.6 | 11 48 47.30 | | | 73 36 27.94 | | |

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| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| π Virginis. | | | | | ι 2 Virginis. | | | | |
| Apr. 20 | Q | ... | 11 54 0'29 | 82 38 17'95 | Apr. 23 | Q | ... | 12 6 36'62 | 78 59 29'52 |
| 24 | Q | 6'0 | 0'29 | 16'40 | γ Corvi. | | | | |
| 25 | Q | ... | 0'30 | 16'82 | | | | | |
| May 2 | Q | ... | 0'30 | 16'65 | Apr. 24 | Q | ... | 12 8 55'05 | 106 47 51'04 |
| 4 | Q | 6'0 | 0'33 | 18'23 | May 3 | Q | ... | 55'00 | 52'63 |
| 7 | Q | ... | 0'22 | 19'09 | Means... | ... | ... | 12 8 55'03 | 106 47 51'84 |
| 9 | Q | ... | ..... | 16'40 | Piazzii xii. 33. | | | | |
| Means... | 6.0 | | 11 54 0'29 | 82 38 17'36 | May 4 | Q | 7'5 | 12 11 17'19 | 93 12 16'76 |
| δ Comæ. | | | | | ι 3 Virginis. | | | | |
| May 3 | Q | ... | 11 57 24'59 | 67 47 39'42 | Apr. 25 | Q | 7'0? | 12 11 48'00 | 90 2 31'07 |
| Groombridge 1850. | | | | | δ Comæ. | | | | |
| Apr. 17 | Q | ... | 11 57 55'67 | 3 40 15'37 | Apr. 13 | Q | ... | ..... | 66 13 15'95 |
| 21 | Q | ... | 56'88 | 12'28 | <i>Reflexion.</i> | | | | |
| Means... | ... | ... | 11 57 56'28 | 3 40 13'83 | Apr. 13 | Q | ... | ..... | 66 13 16'59 |
| Groombridge 1852. | | | | | Groombridge 1871 S.P. | | | | |
| Apr. 13 | Q | ... | ..... | 12 20 43'82 | Nov. 30 | Q | 6'7 | ..... | -2 49 8'23 |
| <i>Reflexion.</i> | | | | | η Virginis. | | | | |
| Apr. 13 | Q | ... | ..... | 12 20 43'53 | May 9 | Q | ... | ... | 89 55 19'11 |
| W.B. (2) XI. 1159. | | | | | 15 | Q | ... | 12 13 3'07 | 19'08 |
| Apr. 23 | Q | ... | 11 59 10'09 | 66 2 58'02 | 23 | Q | ... | 3'09 | 18'02 |
| ι 0 Virginis. | | | | | 24 | Q | ... | 3'09 | 18'83 |
| Apr. 24 | Q | 6'4 | 12 2 49'29 | 87 20 58'71 | Means... | ... | ... | 12 13 3'08 | 89 55 18'76 |
| 25 | Q | ... | 49'32 | 57'37 | W.B. (2) XII. 409. | | | | |
| Means... | 6'4 | | 12 2 49'31 | 87 20 58'04 | May 7 | Q | ... | 12 19 46'06 | 52 8 38'75 |
| ϵ Corvi. | | | | | | | | | |
| May 7 | Q | .. | 12 3 14'26 | 111 52 25'10 | | | | | |

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| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| δ Corvi. | | | | | 26 Comæ. <i>Reflexion.</i> | | | | |
| Apr. 21 | Q | ... | 12 22 56.13 | 105 46 8.26 | Apr. 24 | Q | ... | | 68 12 0.38 |
| 23 | Q | ... | 55.90 | 9.77 | 27 Virginis. | | | | |
| May 4 | Q | ... | 56.03 | 7.03 | Apr. 21 | Q | ... | 12 34 49.34 | 78 50 16.05 |
| 23 | Q | ... | 55.98 | 6.77 | γ¹ Virginis. | | | | |
| 24 | Q | ... | 56.06 | 7.42 | May 23 | Q | ... | 12 34 52.23 | 90 42 46.42 |
| Means... | ... | | 12 22 56.02 | 105 46 7.85 | 24 | Q | ... | 52.19 | 47.32 |
| 4 Draconis. | | | | | Means... | ... | | 12 34 52.21 | 90 42 46.87 |
| Apr. 18 | Q | ... | ..... | 20 3 23.51 | Lalande 23728. | | | | |
| <i>Reflexion.</i> | | | | | Apr. 13 | Q | 8.2 | 12 36 27.34 | 64 57 54.80 |
| Apr. 18 | Q | ... | ..... | 20 3 24.02 | Groombridge 1923 S.P. | | | | |
| 21 Comæ. | | | | | Nov. 20 | Q | 7.4 | ..... | -5 37 10.13 |
| May 2 | Q | ... | 12 24 19.02 | 64 41 29.70 | 21 | Q | 7.7 | ..... | 10.30 |
| 20 Virginis. | | | | | Dec. 14 | Q | 7.6 | ..... | 12.70 |
| May 3 | Q | ... | 12 26 15.91 | 78 57 51.29 | Means... | 7.6 |  | ..... | -5 37 11.04 |
| β Corvi. | | | | | 35 Virginis. | | | | |
| May 7 | Q | ... | 12 27 21.17 | 112 39 17.72 | Apr. 18 | Q | ... | 12 41 2.15 | 85 41 42.10 |
| 15 | Q | ... | 21.34 | 18.83 | 23 | Q | 7.0 | 2.05 | 41.97 |
| Means... | ... | | 12 27 21.26 | 112 39 18.28 | 25 | Q | ... | 2.11 | 41.66 |
| W.B. (2) XII. 628-9. | | | | | May 3 | Q | ... | 2.15 | 42.60 |
| Apr. 13 | Q | 7.7 | 12 30 6.86 | 69 1 31.08 | 4 | Q | ... | 2.08 | 40.57 |
| B.A.C. 4254. | | | | | 15 | Q | ... | 1.90 | 40.70 |
| Apr. 23 | Q | 6.7 | 12 31 32.39 | 87 24 25.98 | 16 | Q | ... | 2.07 | 44.42 |
| 26 Comæ. | | | | | 17 | Q | ... | 2.00 | 41.40 |
| Apr. 24 | Q | ... | ..... | 68 12 1.15 | 18 | Q | ... | 1.99 | 41.94 |
| May 4 | Q | 7.0 | 12 32 27.25 | 11 58.84 | Means... | 7.0 | | 12 41 2.06 | 85 41 41.93 |
| Means... | 7.0 | | 12 32 27.25 | 68 12 0.00 | 7 Draconis. | | | | |
| <i>Reflexion.</i> | | | | | Apr. 24 | Q | ... | | 22 28 38.67 |
| | | | | | Apr. 24 | Q | ... | | 22 28 38.69 |

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| | | | h. m. s. | | | ° ' " | | |
| B.A.C. 4312. | | | | | | | | |
| Apr. 13 | Q | 7 ⁰ | 12 44 | 24 ⁷ 1 | 99 36 | 28 ⁸ 6 | | |
| May 7 | Q | 7 ² | | 24 ⁷ 0 | | 27 ⁷ 1 | | |
| Means... | | 7 ¹ | 12 44 | 24 ⁷ 1 | 99 36 | 28 ² 9 | | |
| 31 Comæ. | | | | | | | | |
| Apr. 21 | Q | ... | 12 45 | 10 ² 3 | 61 43 | 48 ⁵ 9 | | |
| δ Virginis. | | | | | | | | |
| May 12 | Q | ... | 12 48 | 51 ² 0 | 85 52 | 25 ¹ 1 | | |
| 12 Canum Venat. (2nd star.) | | | | | | | | |
| May 17 | Q | ... | 12 49 | 45 ² 9 | 50 57 | 26 ⁴ 2 | | |
| W.B. (2) XII. 1019. | | | | | | | | |
| Apr. 18 | Q | ... | 12 51 | 31 ¹ 35 | 52 32 | 47 ³ 9 | | |
| W.B. (2) XII. 1063. | | | | | | | | |
| Apr. 17 | Q | ... | 12 53 | 54 ⁵ 3 | 69 38 | 32 ⁵ 6 | | |
| May 7 | Q | ... | | 54 ³ 35 | | 31 ¹ 18 | | |
| Means... | | ... | 12 53 | 54 ⁴ 44 | 69 38 | 31 ¹ 87 | | |
| W.B. (2) XII. 1086. | | | | | | | | |
| May 3 | Q | ... | 12 55 | 1 ³ 32 | 68 0 | 29 ⁷ 6 | | |
| 15 | Q | ... | | 1 ³ 30 | | 28 ³ 8 | | |
| 19 | Q | 7 ² | | 1 ⁴ 6 | | 28 ⁹ 8 | | |
| Means... | | 7 ² | 12 55 | 1 ³ 36 | 68 0 | 29 ⁰ 4 | | |
| ε Virginis. | | | | | | | | |
| Apr. 13 | Q | ... | 12 55 | 30 ² 25 | 78 19 | 11 ⁷ 6 | | |
| 23 | Q | ... | | 30 ² 29 | | 11 ⁴ 8 | | |
| 25 | Q | ... | | 30 ³ 37 | | 10 ² 1 | | |
| May 16 | Q | ... | | 30 ³ 36 | | 12 ⁴ 0 | | |
| 18 | Q | ... | | 30 ⁴ 0 | | 11 ⁴ 0 | | |
| Means... | | ... | 12 55 | 30 ³ 33 | 78 19 | 11 ⁴ 5 | | |

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| | | | h. m. s. | | | ° ' " | | |
| W.B. (2) XII. 1124. | | | | | | | | |
| May 24 | Q | ... | 12 57 | 33 ⁷ 3 | 67 23 | 9 ³ 0 | | |
| 40 Comæ. | | | | | | | | |
| May 17 | Q | ... | 12 59 | 51 ¹ 25 | 66 39 | 52 ⁰ 8 | | |
| 21 | Q | 6 ⁰ | | 51 ⁰ 7 | | 51 ⁶ 0 | | |
| Means... | | 6 ⁰ | 12 59 | 51 ¹ 16 | 66 39 | 51 ⁸ 4 | | |
| θ Virginis. | | | | | | | | |
| Apr. 13 | Q | ... | 13 3 | 0 ⁸ 1 | 94 49 | 18 ⁰ 6 | | |
| May 24 | Q | ... | | 0 ⁹ 2 | | 21 ¹ 9 | | |
| Means... | | ... | 13 3 | 0 ⁸ 7 | 94 49 | 19 ⁶ 3 | | |
| W.B. (2) XIII. 45. | | | | | | | | |
| May 19 | Q | 7 ² | 13 4 | 20 ⁹ 8 | 68 3 | 3 ⁴ 0 | | |
| 58 Virginis. | | | | | | | | |
| May 24 | Q | ... | 13 10 | 26 ¹ 4 | 99 50 | 20 ⁶ 8 | | |
| B.A.C. 4444. | | | | | | | | |
| May 21 | Q | 6 ⁷ | 13 10 | 37 ⁹ 6 | 75 37 | 4 ² 3 | | |
| B.A.C. 4455. | | | | | | | | |
| May 19 | Q | 7 ⁰ | 13 12 | 40 ⁹ 6 | 100 58 | 1 ⁴ 7 | | |
| B.A.C. 4472. | | | | | | | | |
| Apr. 13 | Q | 7 ⁸ ? | 13 15 | 24 ⁴ 5 | 84 8 | 30 ⁵ 1 | | |
| Spica. | | | | | | | | |
| May 24 | Q | ... | 13 18 | 8 ¹ 9 | 100 27 | 39 ⁴ 7 | | |
| 29 | Q | ... | | 8 ¹ 9 | | 38 ⁸ 3 | | |
| July 18 | Q | ... | | 8 ³ 7 | | 38 ⁰ 5 | | |
| Means... | | ... | 13 18 | 8 ² 5 | 100 27 | 38 ⁷ 8 | | |

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| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| W.B. (2) XIII. 423. | | | | | Lalande 25221. | | | | |
| Apr. 18 | Q | ... | 13 22 26.99 | 69 30 56.75 | Apr. 23 | Q | 8.2 | 13 32 34.59 | 65 4 6.74 |
| 21 | Q | ... | 26.98 | 56.87 | 24 | Q | 8.3 | 34.67 | 7.84 |
| 23 | Q | 8.2 | 26.89 | 57.64 | May 4 | Q | 8.0 | 34.70 | 6.41 |
| Means... | 8.2 | 13 22 26.95 | 69 30 57.09 | | Means... | 8.2 | 13 32 34.65 | 65 4 7.00 | |
| W.B. (2) XIII. 461. | | | | | 1 Boötis. | | | | |
| Apr. 24 | Q | ... | 13 24 1.84 | 60 44 19.31 | May 3 | Q | ... | 13 34 16.42 | 69 21 54.60 |
| May 4 | Q | 8.3 | 1.80 | 22.29 | m Virginis. | | | | |
| 17 | Q | 8.2 | 1.97 | 19.53 | May 12 | Q | ... | 13 34 35.01 | 98 1 32.82 |
| Means... | 8.2 | 13 24 1.87 | 60 44 20.38 | | 17 | Q | ... | 34.95 | 32.11 |
| B.A.C. 4513. | | | | | 18 | Q | ... | 34.82 | 32.44 |
| May 15 | Q | ... | 13 24 30.75 | 65 4 13.66 | 19 | Q | 6.0 | 34.77 | 33.95 |
| 21 | Q | 7.6 | 30.83 | 15.29 | June 6 | Q | ... | 34.87 | 31.99 |
| Means... | 7.6 | 13 24 30.79 | 65 4 14.48 | | Means... | 6.0 | 13 34 34.88 | 98 1 32.66 | |
| l ² Virginis. | | | | | Radcliffe 3075. | | | | |
| May 3 | Q | ... | 13 25 0.09 | 95 33 47.01 | May 21 | Q | 7.6 | ..... | 4 2 32.37 |
| ζ Virginis. | | | | | Radcliffe 3075 S.P. | | | | |
| Apr. 17 | Q | 4.0 | 13 27 51.99 | 89 54 34.45 | Nov. 9 | Q | 8.2 | ..... | -4 2 24.39 |
| May 16 | Q | ... | 52.01 | 35.80 | 27 | Q | 8.0 | ..... | 26.31 |
| 19 | Q | ... | 52.00 | 34.41 | Dec. 7 | Q | 7.7 | ..... | 27.71 |
| 28 | Q | ... | 52.00 | 35.74 | 8 | Q | 8.1 | ..... | 28.19 |
| 29 | Q | ... | 52.01 | 34.45 | 10 | Q | 8.0 | ..... | 27.30 |
| Means... | 4.0 | 13 27 52.00 | 89 34 34.97 | | 19 | Q | ... | ..... | 29.41 |
| 81 Virginis. | | | | | Means... | 8.0 | ..... | -4 2 27.22 | |
| Apr. 18 | Q | ... | 13 30 34.16 | 97 11 15.43 | Lalande 25292. | | | | |
| 21 | Q | ... | 34.09 | 13.97 | Apr. 17 | Q | 8.2 | 13 35 45.58 | 66 42 8.59 |
| Means... | ... | 13 30 34.13 | 97 11 14.70 | | B.A.C. 4575. | | | | |
| B.A.C. 4553. | | | | | Apr. 18 | Q | ... | 13 37 25.37 | 66 37 22.48 |
| May 7 | Q | 7.4 | 13 31 40.83 | 66 47 10.24 | May 23 | Q | ... | 25.24 | 23.98 |
| | | | | | Means... | ... | 13 37 25.31 | 66 37 23.23 | |

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| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| B.A.C. 4578. | | | | | W.B. (2) XIII. 954. | | | | |
| May 29 | Q | ... | 13 37 55.63 | 96 57 37.88 | May 7 | Q | 8.5 | 13 45 15.79 | 66 34 16.59 |
| 87 Virginis. | | | | | June 2 | Q | ... | 16.04 | 16.89 |
| May 4 | Q | 6.2 | 13 40 8.36 | 107 11 14.51 | Means... | 8.5 | 13 45 15.92 | 66 34 16.74 | |
| τ Boötis. | | | | | η Boötis. | | | | |
| May 28 | Q | ... | 13 40 53.56 | 71 52 26.99 | Apr. 24 | Q | ... | 13 48 18.14 | 70 55 47.82 |
| B.A.C. 4604 | | | | | May 12 | Q | ... | 18.15 | 45.69 |
| May 15 | Q | ... | 13 41 43.55 | 92 10 15.87 | 16 | Q | ... | 18.25 | 45.97 |
| η Ursæ Majoris. | | | | | June 7 | Q | ... | 18.20 | 47.00 |
| Oct. 16 | Q | ... | 13 42 15.23 | 40 1 3.58 | Nov. 3 | Q | ... | ..... | 49.02 |
| 17 | Q | ... | 15.20 | 2.14 | 5 | Q | ... | 18.21 | ..... |
| 30 | Q | ... | 15.21 | 5.60 | Means... | ... | 13 48 18.19 | 70 55 47.10 | |
| Nov. 3 | Q | ... | ..... | 5.09 | Lacaille 5763. | | | | |
| 5 | Q | ... | 15.57 | ..... | May 21 | Q | 6.5 | 13 48 55.73 | 116 58 49.47 |
| Means... | ... | 13 42 15.30 | 40 1 4.10 | | 92 Virginis. | | | | |
| 89 Virginis. | | | | | May 23 | Q | ... | 13 49 38.29 | 88 17 32.94 |
| Apr. 24 | Q | 6.0 | 13 42 35.77 | 107 27 54.81 | B.A.C. 4662. | | | | |
| May 3 | Q | ... | 35.79 | 54.43 | May 3 | Q | ... | 13 52 11.81 | 74 41 42.20 |
| Means... | 6.0 | 13 42 35.78 | 107 27 54.62 | | 28 | Q | ... | 11.61 | 41.62 |
| B.A.C. 4610. | | | | | Means... | ... | 13 52 11.71 | 74 41 41.91 | |
| May 19 | Q | 6.5 | 13 42 35.79 | 58 8 45.60 | B.A.C. 4665. | | | | |
| B.A.C. 4621. | | | | | May 17 | Q | 7.0 | 13 52 52.82 | 92 53 42.87 |
| June 6 | Q | ... | 13 43 42.47 | 70 42 13.84 | 29 | Q | .. | 52.74 | 41.47 |
| B.A.C. 4622. | | | | | Means... | 7.0 | 13 52 52.78 | 92 53 42.19 | |
| Apr. 21 | Q | .. | 13 43 48.50 | 97 7 4.94 | B.A.C. 4666. | | | | |
| 23 | Q | 7.3 | 48.43 | 4.84 | Apr. 23 | Q | | 13 53 1.08 | 97 30 28.91 |
| Means... | 7.3 | 13 43 48.47 | 97 7 4.89 | | | | | | |

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|------------------------|-----------|------|-------------------------------|-------|---------------------------------|-------|
| | | | h. m. s. | | ° ' " | |
| τ Virginis. | | | | | | |
| May 4 | Q | ... | 13 54 | 49'81 | 87 48 | 19'23 |
| 21 | Q | ... | | 49'68 | | 19'82 |
| June 8 | Q | ... | | 49'66 | | 18'77 |
| 22 | Q | ... | | 49'68 | | 19'97 |
| Means... | ... | | 13 54 | 49'71 | 87 48 | 19'45 |
| B.A.C. 4673. | | | | | | |
| May 15 | Q | ... | 13 55 | 9'69 | 109 9 | 39'06 |
| B.A.C. 4678. | | | | | | |
| May 23 | Q | ... | 13 56 | 36'45 | 57 41 | 33'91 |
| W.B. (2) XIII. 1252. | | | | | | |
| Apr. 24 | Q | ... | 13 57 | 7'97 | 66 51 | 28'84 |
| June 2 | Q | ... | | 8'06 | | 28'29 |
| Means... | ... | | 13 57 | 8'02 | 66 51 | 28'57 |
| W.B. (2) XIII. 1303-4. | | | | | | |
| May 12 | Q | ... | 13 59 | 59'80 | 67 11 | 27'39 |
| June 7 | Q | ... | | 59'89 | | 28'11 |
| Means... | ... | | 13 59 | 59'85 | 67 11 | 27'75 |
| W.B. (2) XIII. 1350. | | | | | | |
| May 16 | Q | 8'0 | 14 1 | 40'29 | 68 55 | 39'73 |
| Groombridge 2099. | | | | | | |
| May 3 | Q | ... | 14 3 | 39'95 | 3 36 | 4'50 |
| 17 | Q | 7'4 |  | ..... |  | 3'16 |
| 29 | Q | ... |  | ..... |  | 3'32 |
| Means... | 7'4 | | 14 3 | 39'95 | 3 36 | 3'66 |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | | Mean N.P.D. 1866, Jan. 1. | |
|-----------------|-----------|------|-------------------------------|-------|---------------------------------|-------|
| | | | h. m. s. | | ° ' " | |
| κ Virginis. | | | | | | |
| May 4 | Q | 5'0 | 14 5 | 45'04 | 99 38 | 52'78 |
| 7 | Q | ... | | 45'00 | | 53'31 |
| 18 | Q | ... | | 45'02 | | 54'63 |
| 28 | Q | ... | | 45'01 | | 54'41 |
| June 8 | Q | ... | | 45'06 | | 52'45 |
| 16 | Q | ... |  | ..... |  | 53'83 |
| Means... | 5'0 | | 14 5 | 45'03 | 99 38 | 53'57 |
| Lalande 26089. | | | | | | |
| May 19 | Q | 7'7 | 14 7 | 40'56 | 69 47 | 29'71 |
| Arcturus. | | | | | | |
| June 6 | Q | ... | 14 9 | 32'94 | 70 7 | 8'37 |
| 7 | Q | ... | | 33'03 | | 7'61 |
| 16 | Q | ... |  | ..... |  | 6'78 |
| Oct. 8 | Q | ... | | 33'05 | | 8'14 |
| 16 | Q | ... | | 32'88 | | 7'67 |
| 30 | Q | ... | | 33'00 | | 9'56 |
| Nov. 3 | Q | ... |  | ..... |  | 9'52 |
| 5 | Q | ... | | 33'06 |  | ..... |
| 16 | Q | ... | | 32'95 | | 8'85 |
| 18 | Q | ... | | 32'95 | | 9'58 |
| 19 | Q | ... | | 33'05 | | 10'18 |
| Means... | ... | | 14 9 | 32'99 | 70 7 | 8'63 |
| A Boötis. | | | | | | |
| May 12 | Q | ... | 14 12 | 19'94 | 53 52 | 15'96 |
| June 22 | Q | ... | | 19'85 | | 15'60 |
| Means... | ... | | 14 12 | 19'90 | 53 52 | 15'78 |
| * | | | | | | |
| May 4 | Q | 8'8 | 14 13 | 33'38 | 65 52 | 43'15 |
| Piazzi xiv. 60. | | | | | | |
| May 15 | Q | ... | 14 14 | 47'60 | 69 39 | 12'65 |
| June 8 | Q | ... | | 47'49 | | 12'99 |
| Means... | ... | | 14 14 | 47'55 | 69 39 | 12'82 |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | | | Mean N.P.D. 1866, Jan. 1. | | |
|-----------------------------|-----------|------|-------------------------------|----|-------|---------------------------------|----|----------|
| | | | h. | m. | s. | ° | ' | " |
| B.A.C. 4764. | | | | | | | | |
| May 17 | Q | 8.0 | 14 | 15 | 33.29 | 97 | 9 | 6.34 |
| 2 Libræ. | | | | | | | | |
| May 3 | Q | ... | 14 | 16 | 13.14 | 101 | 6 | 0.68 |
| 7 | Q | ... | | | 13.20 | | | 1.06 |
| 16 | Q | ... | | | 13.32 | | | 1.86 |
| Means... | ... | ... | 14 | 16 | 13.22 | 101 | 6 | 1.20 |
| B.A.C. 4766. (2nd star.) | | | | | | | | |
| May 28 | Q | ... | 14 | 16 | 47.20 | 80 | 56 | 29.61 |
| f Boötis. | | | | | | | | |
| June 2 | Q | ... | 14 | 20 | 13.43 | 70 | 10 | 9.58 |
| 6 | Q | ... | | | 13.50 | | | 8.37 |
| Means... | ... | ... | 14 | 20 | 13.47 | 70 | 10 | 8.98 |
| 104 Virginis. | | | | | | | | |
| May 4 | Q | 6.3 | 14 | 20 | 22.64 | 95 | 30 | 51.12 |
| B.A.C. 4794. | | | | | | | | |
| June 7 | Q | ... | 14 | 21 | 22.61 | 99 | 24 | 4.58 |
| B.A.C. 4798. | | | | | | | | |
| May 15 | Q | ... | 14 | 23 | 0.64 | 88 | 34 | 18.83 |
| June 8 | Q | 6.5 | | | 0.67 | | | 18.26 |
| Means... | 6.5 | ... | 14 | 23 | 0.68 | 88 | 34 | 18.55 |
| * | | | | | | | | |
| May 24 | Q | - | 14 | 25 | 31.86 | 61 | 37 | 41.54 |
| ρ Boötis. | | | | | | | | |
| May 7 | Q | ... | 14 | 26 | 3.17 | ..... |  |  |
| 12 | Q | ... | | | 3.31 | 59 | 2 | 21.45 |
| 17 | Q | ... | | | 3.28 | | | 19.35 |
| June 22 | Q | ... | | | 3.15 | | | 20.12 |
| 23 | Q | ... | | | 3.18 | | | 19.84 |
| Nov. 5 | Q | ... | | | 3.19 | | | 22.03 |
| Means... | ... | ... | 14 | 26 | 3.21 | 59 | 2 | 20.56 |
| Lalande 26645. | | | | | | | | |
| May 3 | Q | ... | 14 | 30 | 3.51 | 66 | 9 | 53.89 |
| 4 | Q | 7.0 | | | 3.58 | | | 53.90 |
| 15 | Q | ... | | | 3.44 | | | 54.19 |
| 21 | Q | ... | | | 3.57 | | | 54.97 |
| June 7 | Q | 7.0 | | | 3.47 | | | 55.27 |
| Means... | 7.0 | ... | 14 | 30 | 3.51 | 66 | 9 | 54.44 |
| Lalande 26680-1. | | | | | | | | |
| May 19 | Q | 8.0 | 14 | 31 | 18.22 | 69 | 34 | 1.86 |
| 21 | Q | ... | | | 18.14 | | | 34 0.55 |
| June 2 | Q | 7.8 | | | 18.07 | | | 33 59.56 |
| Means... | 7.9 | ... | 14 | 31 | 18.14 | 69 | 34 | 0.66 |
| W.B. (2) XIV. 664. | | | | | | | | |
| May 17 | Q | 7.7 | 14 | 32 | 17.41 | 69 | 33 | 45.24 |
| π Boötis. | | | | | | | | |
| May 28 | Q | ... | 14 | 34 | 25.48 | 73 | 0 | 21.16 |
| June 8 | Q | ... | | | 25.66 | | | 17.98 |
| Means... | ... | ... | 14 | 34 | 25.57 | 73 | 0 | 19.57 |
| Piazzi xiv. 160. | | | | | | | | |
| May 7 | Q | ... | 14 | 35 | 47.42 | 68 | 18 | 2.41 |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|--------------------|-----------|-------------|-------------------------------|---------------------------------|-----------------------|-----------|-------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| W.B. (2) XIV. 798. | | | | | ξ ¹ Libræ. | | | | |
| May 4 | Q | 7.6 | 14 37 59.99 | 70 57 45.40 | May 15 | Q | ... | 14 47 6.36 | 101 20 55.89 |
| 23 | Q | ... | 59.82 | 46.42 | 21 | Q | ... | 6.54 | 59.12 |
| 29 | Q | 7.5 | 59.70 | 44.88 | 24 | Q | ... | 6.37 | 58.17 |
| Means... | 7.5 | 14 37 59.84 | 70 57 45.57 | | June 7 | Q | 7.0 | 6.66 | 57.98 |
| ε Boötis. | | | | | Means... | 7.0 | 14 47 6.48 | 101 20 57.79 | |
| May 12 | Q | ... | 14 39 8.13 | 62 21 34.29 | W.B. (2) XIV. 1044. | | | | |
| 15 | Q | ... | 8.02 | 33.37 | May 29 | Q | 7.4 | 14 48 55.98 | 65 51 37.75 |
| 17 | Q | ... | 8.07 | 33.33 | ξ ³ Libræ. | | | | |
| 19 | Q | ... | 8.05 | 34.12 | May 17 | Q | 6.4 | 14 49 29.99 | 100 52 0.64 |
| 21 | Q | ... | 8.06 | 34.28 | 19 | Q | 6.0 | 30.09 | 1.32 |
| 24 | Q | ... | 8.00 | 34.77 | Means... | 6.2 | 14 49 30.04 | 100 52 0.98 | |
| June 2 | Q | ... | 8.02 | 32.55 | 59 Hydræ. | | | | |
| 6 | Q | ... | 8.10 | 34.85 | May 12 | Q | ... | 14 50 43.71 | 117 7 0.72 |
| 7 | Q | ... | 8.07 | 34.46 | β Ursæ Minoris. | | | | |
| Oct. 15 | Q | ... | 7.94 | 36.69 | Oct. 8 | Q | ... | 14 51 7.27 | 15 17 50.28 |
| 16 | Q | ... | 8.14 | 34.50 | 16 | Q | ... | 6.80 | 51.20 |
| 17 | Q | ... | 8.06 | 34.18 | 31 | Q | ... | 7.45 | 52.52 |
| 31 | Q | ... | 8.07 | 36.30 | Nov. 16 | Q | ... | 7.99 | 52.39 |
| Nov. 16 | Q | ... | 8.11 | 37.72 | 19 | Q | ... | 7.41 | 51.47 |
| 19 | Q | ... | 8.08 | 36.91 | 25 | Q | ... | 7.17 | 51.69 |
| 25 | Q | ... | ..... | 35.96 | 29 | Q | ... | 7.05 | 49.85 |
| 29 | Q | ... | 7.93 | 35.35 | Means... | ... | 14 51 7.31 | 15 17 51.34 | |
| Means... | ... | 14 39 8.05 | 62 21 34.92 | | β Ursæ Minoris S.P. | | | | |
| α Libræ. | | | | | Dec. 8 | Q | ... | ..... | -15 17 48.11 |
| May 28 | Q | ... | 14 43 28.11 | 105 28 57.17 | W.B. (2) XIV. 1140. | | | | |
| June 8 | Q | ... | 28.13 | 58.04 | June 19 | Q | ... | 14 52 53.17 | 65 17 38.00 |
| 19 | Q | ... | 28.25 | 57.37 | W.B. (2) XIV. 1166. | | | | |
| 23 | Q | ... | 28.19 | 58.46 | June 7 | Q | 8.0 | 14 53 53.41 | 59 35 49.56 |
| Means... | ... | 14 43 28.17 | 105 28 57.76 | | | | | | |
| ξ Boötis. | | | | | | | | | |
| May 7 | Q | ... | 14 45 12.54 | 70 20 30.75 | | | | | |
| B.A.C. 4910. | | | | | | | | | |
| May 23 | Q | ... | 14 46 9.35 | 113 25 28.19 | | | | | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-------------------------------|----------------|------------------------|-------------------------------|---------------------------------|------------------------|----------------|-----------------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| Piazzi xiv. 247. | | | | | B.A.C. 5000. | | | | |
| June 8 | Q | ... | 14 54 52 ⁰⁰ | 67 25 19 ⁶³ | June 23 | Q | ... | 15 5 13 ⁰⁴ | 56 24 43 ¹² |
| Groombridge 2210. | | | | | Groombridge 2213. | | | | |
| May 15 | Q | ... | ..... | 3 29 56 ⁴⁵ | May 12 | Q | ... | ..... | 5 31 53 ⁵¹ |
| 19 | Q | ... | ..... | 57 ⁶² | 23 | Q | ... | ..... | 54 ⁷⁸ |
| 24 | Q | ... | ..... | 58 ⁸³ | June 26 | Q | ... | ..... | 52 ⁸⁷ |
| Mean... | ... | ... | ..... | 3 29 57 ⁶³ | Mean... | ... | ... | ..... | 5 31 53 ⁷² |
| Groombridge 2210 S. P. | | | | | Groombridge 2213 S. P. | | | | |
| Jan. 23 | Q | ... | ..... | -3 29 55 ¹⁶ | Jan. 9 | Q | 7 ³ | 15 5 29 ³⁰ | -5 31 52 ²⁶ |
| Σ 1904. (2nd star.) | | | | | 11 | Q | 7 ⁰ | ..... | 52 ⁵¹ |
| May 21 | Q | 7 ⁵ | 14 57 27 ³⁰ | 83 58 48 ⁴⁹ | 12 | Q | ... | ..... | 51 ⁵⁷ |
| B.A.C. 4959. | | | | | 20 | Q | 6 ⁸ | ..... | 53 ³⁰ |
| May 23 | Q | ... | 14 57 54 ⁸³ | 115 15 54 ⁸⁸ | 25 | Q | ... | ..... | 51 ²³ |
| ν^2 Libræ. | | | | | Means... | 7 ⁰ | 15 5 29 ³⁰ | -5 31 52 ¹⁷ | |
| May 17 | Q | 6 ⁵ | 14 59 20 ³⁴ | 105 57 46 ⁶³ | B.A.C. 5006. | | | | |
| June 19 | Q | ... | 20 ⁴⁰ | 46 ⁴⁴ | May 19 | Q | 6 ⁰ | 15 5 57 ³⁹ | 115 41 21 ³⁵ |
| Means... | 6 ⁵ | 14 59 20 ³⁷ | 105 57 46 ⁵⁴ | | B.A.C. 5020. | | | | |
| W.B. (2) XIV. 1301. | | | | | May 21 | Q | 7 ⁰ | 15 7 38 ⁸² | 117 5 48 ³⁹ |
| June 7 | Q | 7 ⁷ | 15 0 34 ⁰⁴ | 63 2 32 ⁹² | June 19 | Q | ... | 38 ⁹² | 48 ¹⁶ |
| W.B. (2) XV. 7. | | | | | Means... | 7 ⁰ | 15 7 38 ⁸⁷ | 117 5 48 ²⁸ | |
| June 8 | Q | ... | 15 2 9 ⁰⁵ | 68 23 40 ⁹⁹ | B.A.C. 5023. | | | | |
| W.B. (2) XV. 71. | | | | | May 17 | Q | 6 ⁰ | 15 8 37 ¹⁷ | 111 54 28 ⁵ |
| May 29 | Q | 8 ³ | 15 4 37 ¹⁵ | 64 2 46 ²⁷ | β Libræ. | | | | |
| B.A.C. 5043. | | | | | May 15 | Q | ... | 15 9 47 ⁸⁷ | 98 53 10 ¹⁷ |
| May 29 | Q | 7 ⁴ | 15 12 8 ⁵⁹ | 98 39 15 ¹¹ | June 2 | Q | ... | 48 ⁰¹ | 12 ⁰⁴ |
| | | | | | Means... | ... | 15 9 47 ⁹⁴ | 98 53 11 ¹¹ | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-----------------------|-----------|-------------|-------------------------------|---------------------------------|-----------------------|-----------|-------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| B.A.C. 5045. | | | | | Groombridge 2283 S.P. | | | | |
| May 19 | Q | ... | 15 12 27.71 | 117 47 51.68 | Jan. 6 | Q | 7.6 | ..... | -2 15 29.33 |
| | | | | | Dec. 13 | Q | ... | ..... | 29.01 |
| Radcliffe 3362. | | | | | Means... | 7.6 | ..... | -2 15 29.17 | |
| May 28 | Q | ... | ..... | 3 58 47.47 | W.B. (2) XV. 474. | | | | |
| Radcliffe 3362 S.P. | | | | | May 19 | Q | 8.2 | 15 22 20.01 | 67 3 4.35 |
| Jan. 29 | Q | ... | ..... | -3 58 44.61 | W.B. (2) XV. 491. | | | | |
| 6 Serpentis. | | | | | May 29 | Q | 8.0 | 15 22 53.07 | 67 5 19.02 |
| June 23 | Q | ... | 15 14 12.69 | 88 47 42.55 | B.A.C. 5104. | | | | |
| ♂ ³ Libræ. | | | | | May 24 | Q | ... | 15 24 1.00 | 109 42 15.22 |
| May 21 | Q | 7.0 | 15 15 33.54 | 104 39 12.21 | B.A.C. 5105. | | | | |
| June 7 | Q | 6.3 | 33.64 | 11.52 | May 17 | Q | 6.7 | 15 24 21.29 | 113 25 16.44 |
| 19 | Q | ... | 33.54 | 10.41 | 21 | Q | 7.0 | 21.28 | 19.16 |
| Means... | 6.6 | 15 15 33.57 | 104 39 11.38 | | Means... | 6.8 | 15 24 21.29 | 113 25 17.80 | |
| B.A.C. 5070. | | | | | 11 Serpentis. | | | | |
| May 17 | Q | 6.0 | 15 16 31.29 | 101 53 20.74 | May 23 | Q | ... | 15 26 3.83 | 90 43 45.01 |
| 23 | Q | ... | 31.37 | 19.85 | B.A.C. 5126. | | | | |
| 24 | Q | ... | 31.19 | 21.16 | June 26 | Q | ... | 15 26 54.04 | 73 31 58.27 |
| Means... | 6.0 | 15 16 31.28 | 101 53 20.58 | | B.A.C. 5129. | | | | |
| 8 Serpentis. | | | | | May 15 | Q | ... | 15 27 12.56 | 98 43 49.05 |
| June 8 | Q | ... | 15 16 49.52 | 90 32 30.37 | B.A.C. 5128. | | | | |
| 26 | Q | ... | 49.38 | 27.98 | June 19 | Q | ... | 15 27 16.29 | 115 16 54.26 |
| Means... | ... | 15 16 49.45 | 90 32 29.18 | | γ Libræ. | | | | |
| η Coronæ. | | | | | June 23 | Q | ... | 15 28 2.07 | 104 20 25.93 |
| May 15 | Q | ... | 15 17 40.10 | 59 13 35.47 | | | | | |
| ζ ¹ Libræ. | | | | | | | | | |
| June 2 | Q | ... | 15 20 42.15 | 106 14 49.99 | | | | | |
| 23 | Q | ... | 42.16 | 47.13 | | | | | |
| Means... | ... | 15 20 42.16 | 106 14 48.56 | | | | | | |

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|-------------------------------|-----------|-------------|-------------------------------|---------------------------------|---------------------|-----------|-------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| α Coronæ. | | | | | τ^7 Serpentis. | | | | |
| May 29 | Q | ... | 15 29 0'90 | 62 49 58'00 | May 21 | Q | 6'5 | 15 35 53'01 | 71 6 26'47 |
| June 7 | Q | ... | ..... | 56'33 | June 29 | M | 5'0 | 53'00 | 27'21 |
| 8 | Q | ... | ..... | 57'62 | Means... | 5'7 | 15 35 53'01 | 71 6 26'84 | |
| Oct. 16 | Q | ... | 0'98 | 59'51 | γ Coronæ. | | | | |
| 17 | Q | ... | 0'97 | 58'30 | May 29 | Q | ... | 15 37 6'82 | 63 16 42'77 |
| Nov. 6 | Q | ... | 0'88 | 59'96 | α Serpentis. | | | | |
| 9 | Q | ... | 0'96 | 50 0'57 | May 19 | Q | ... | 15 37 40'20 | 83 9 1'22 |
| 19 | Q | ... | 0'87 | 49 59'18 | 23 | Q | ... | 40'06 | 1'73 |
| 29 | Q | ... | 0'88 | 57'57 | June 25 | Q | ... | 40'12 | 0'54 |
| Dec. 7 | Q | ... | 0'86 | 58'80 | 26 | Q | ... | 39'97 | 1'27 |
| Means... | ... | 15 29 0'91 | 62 49 58'58 | | July 4 | Q | ... | 40'17 | 3'25 |
| <i>Reflexion.</i> | | | | | 21 | Q | ... | 40'26 | 2'65 |
| June 7 | Q | ... | ..... | 62 49 57'02 | Nov. 25 | Q | ... | ..... | 4'07 |
| 8 | Q | ... | ..... | 58'18 | Means... | ... | 15 37 40'13 | 83 9 2'10 | |
| Mean... | ... | ..... | 62 49 57'60 | | A^3 Serpentis. | | | | |
| τ^4 Serpentis. | | | | | June 8 | Q | ... | 15 39 9'83 | 91 22 54'46 |
| May 19 | Q | 6'5 | 15 30 15'65 | 74 27 9'64 | 19 | Q | 6'0 | 9'83 | 54'76 |
| B.A.C. 5158. | | | | | Means... | 6'0 | 15 39 9'83 | 91 22 54'61 | |
| June 22 | Q | ... | 15 31 0'90 | 104 4 16'42 | 29 Serpentis. | | | | |
| Σ 1962. (2nd star.) | | | | | June 2 | Q | 7'5 | 15 40 14'19 | 74 3 16'93 |
| May 17 | Q | 7'5 | 15 31 26'34 | 98 20 58'01 | v Serpentis. | | | | |
| 23 | Q | ... | 26'03 | 58'67 | May 24 | Q | ... | 15 41 3'94 | 75 28 10'88 |
| Means... | 7'5 | 15 31 26'19 | 98 20 58'34 | | B.A.C. 5228. | | | | |
| B.A.C. 5167. | | | | | May 19 | Q | 6'7 | 15 42 30'84 | 115 52 41'90 |
| June 2 | Q | ... | 15 33 19'97 | 118 51 55'27 | 21 | Q | 7'0 | 30'58 | 43'77 |
| ζ Coronæ. | | | | | Means... | 6'8 | 15 42 30'71 | 115 52 42'84 | |
| May 24 | Q | ... | 15 34 19'90 | 52 55 40'78 | | | | | |

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|----------------------|-----------|-------------|-------------------------------|---------------------------------|--------------------|-----------|-------------|-------------------------------|---------------------------------|
| | | | h. m. s. | o / " | | | | h. m. s. | o / " |
| <i>b</i> Serpentis. | | | | | B.A.C. 5291. | | | | |
| May 29 | Q | 6.2 | 15 44 16.89 | 92 40 56.79 | May 21 | Q | ... | 15 50 59.00 | 103 3 11.80 |
| A Scorpii. | | | | | (T) Coronæ. | | | | |
| June 26 | Q | ... | 15 45 34.27 | 114 55 23.05 | May 29 | Q | 8.3 | 15 53 53.73 | 63 41 51.60 |
| θ Libræ. | | | | | June 2 | Q | 8.4 | 53.58 | 52.48 |
| May 28 | Q | ... | 15 46 11.73 | 106 20 0.30 | 7 | Q | 8.4 | 53.56 | ..... |
| 47 Libræ. | | | | | Means... | 8.4 | 15 53 53.62 | 63 41 52.04 | |
| June 2 | Q | 5.8 | 15 47 15.99 | 108 59 4.29 | β^1 Scorpii. | | | | |
| 29 | M | 7.0 | 15.78 | 0.96 | June 25 | Q | ... | 15 57 38.93 | 109 26 8.81 |
| July 9 | Q | ... | 15.99 | 3.40 | 29 | M | ... | 38.99 | 6.17 |
| Means... | 6.4 | 15 47 15.92 | 108 59 2.88 | | July 9 | Q | ... | 38.91 | 7.13 |
| 40 Serpentis. | | | | | 16 | Q | ... | 38.99 | 7.30 |
| June 7 | Q | 6.5 | 15 48 11.87 | 81 1 21.65 | 21 | Q | ... | 38.96 | 7.47 |
| Radcliffe 3475. | | | | | Means... | ... | 15 57 38.96 | 109 26 7.38 | |
| June 8 | Q | ... | ..... | 4 44 19.68 | B.A.C. 5345. | | | | |
| 19 | Q | 7.3 | ..... | 16.94 | June 8 | Q | ... | 15 59 49.53 | 114 5 56.20 |
| 22 | Q | ... | ..... | 17.25 | 46 Serpentis. | | | | |
| 23 | Q | ... | ..... | 17.09 | June 29 | M | 7.0 | 16 1 42.47 | 79 33 29.84 |
| Means... | 7.3 | ..... | 4 44 17.74 | | B.A.C. 5379. | | | | |
| Radcliffe 3475 S. P. | | | | | June 23 | Q | ... | 16 3 33.90 | 97 56 48.11 |
| Jan. 8 | Q | ... | ..... | -4 44 17.64 | ν Scorpii. | | | | |
| Feb. 2 | Q | 7.3 | ..... | 15.61 | June 25 | Q | ... | 16 4 12.55 | 109 6 33.92 |
| Means... | 7.3 | ..... | -4 44 16.63 | | July 10 | Q | ... | 12.74 | 33.52 |
| B.A.C. 5276. | | | | | Means... | ... | 16 4 12.65 | 109 6 33.72 | |
| May 24 | Q | ... | 15 48 58.22 | 91 46 4.95 | Radcliffe 3523. | | | | |
| γ Serpentis. | | | | | June 28 | Q | ... | ..... | 4 19 5.70 |
| July 4 | Q | ... | 15 50 15.90 | 73 53 54.30 | July 4 | Q | ... | ..... | 6.45 |
| | | | | | Mean... | ... | ..... | 4 19 6.08 | |

48 *Separate Results for Mean R.A. and Mean N.P.D. of Stars*

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|---------------------|-----------|------------|-------------------------------|---------------------------------|---------------|-----------|-------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| Radcliffe 3523 S.P. | | | | | γ Herculis. | | | | |
| Feb. 7 | Q | ... | ..... | -4 19 4'34 | June 2 | Q | ... | 16 16 0'59 | 70 31 48'24 |
| | | | | | 19 | Q | ... | 0'54 | 48'14 |
| Radcliffe 3522. | | | | | 22 | Q | ... | 0'50 | 48'68 |
| June 2 | Q | 7'0 | ..... | 5 59 55'69 | 26 | Q | ... | 0'54 | 48'19 |
| 7 | Q | 7'0 | ..... | 56'51 | 28 | M | ... | 0'74 | 46'69 |
| Means... | 7'0 | ..... |  | 5 59 56'10 | 29 | Q | ... | 0'53 | 46'84 |
| B.A.C. 5394. | | | | | July 4 | Q | ... | 0'55 | 48'40 |
| June 19 | Q | ... | 16 5 41'89 | 114 4 29'95 | 9 | Q | ... | 0'55 | 48'14 |
| B.A.C. 5395. | | | | | 11 | Q | ... | 0'38 | 46'27 |
| July 9 | Q | ... | 16 5 47'98 | 111 3 16'86 | 12 | Q | ... | 0'56 | 47'42 |
| δ Ophiuchi. | | | | | 16 | Q | ... | 0'53 | 47'50 |
| June 8 | Q | ... | 16 7 19'59 | 93 20 48'27 | 23 | Q | ... | ..... | 48'53 |
| 26 | Q | ... | 19'63 | 47'17 | Means... | ... | 16 16 0'55 | 70 31 47'76 | |
| 29 | M | ... | 19'52 | 46'06 | χ Ophiuchi. | | | | |
| July 12 | Q | ... | 19'51 | 48'37 | May 28 | Q | ... | 16 19 15'45 | 108 8 55'45 |
| 16 | Q | ... | 19'52 | 48'74 | 29 | Q | 5'8 | 15'79 | 57'20 |
| Means... | ... | 16 7 19'55 | 93 20 47'72 | | Means... | 5'8 | 16 19 15'62 | 108 8 56'33 | |
| B.A.C. 5418. | | | | | Antares. | | | | |
| May 29 | Q | 7'3 | 16 8 23'45 | 113 56 37'61 | June 25 | Q | ... | 16 21 11'80 | 116 7 51'71 |
| 18 Herculis. | | | | | 29 | M | ... | 11'76 | 49'80 |
| May 28 | Q | ... | 16 12 10'02 | 66 3 51'58 | July 14 | Q | ... | 11'66 | 52'91 |
| 19 Scorpii. | | | | | 19 | Q | ... | 11'65 | 53'45 |
| July 10 | Q | ... | 16 12 34'57 | 113 50 35'27 | Means... | ... | 16 21 11'72 | 116 7 51'97 | |
| | | | | | η Draconis. | | | | |
| | | | | | June 7 | Q | ... | ..... | 28 10 56'29 |
| | | | | | 8 | Q | ... | ..... | 56'91 |
| | | | | | Oct. 31 | Q | ... | 16 22 10'74 | 57'65 |
| | | | | | Nov. 19 | Q | ... | 11'01 | 57'68 |
| | | | | | 20 | Q | ... | 10'96 | 59'45 |
| | | | | | 26 | Q | ... | 10'74 | 58'63 |
| | | | | | Dec. 7 | Q | ... | 11'02 | 55'98 |
| | | | | | Means... | ... | 16 22 10'89 | 28 10 57'51 | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|---------------------------------------|-----------|------|-------------------------------|---------------------------------|-------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| η Draconis. <i>Reflexion.</i> | | | | | ζ Ophiuchi. | | | | |
| June 7 | Q | ... | ..... | 28 10 54.65 | July 9 | Q | ... | 16 29 46.93 | 100 17 32.71 |
| 8 | Q | ... | ..... | 54.47 | 10 | Q | ... | 46.97 | 34.84 |
| 23 | Q | ... | ..... | 60.76 | 14 | Q | ... | 46.90 | 32.59 |
| Mean... | ... | ... | ..... | 28 10 56.63 | 19 | Q | ... | 46.99 | 34.63 |
| 26 Herculis. | | | | | Means... | ... | ... | 16 29 46.95 | 100 17 33.69 |
| July 9 | Q | ... | 16 22 52.06 | 57 0 3.69 | B.A.C. 5562. | | | | |
| B.A.C. 5513. | | | | | May 29 | Q | 7.0 | 16 31 47.03 | 118 40 19.16 |
| July 10 | Q | ... | 16 23 9.67 | 116 14 32.61 | B.A.C. 5579. | | | | |
| 12 | Q | ... | 9.55 | 35.01 | July 23 | Q | ... | 16 33 49.49 | 107 28 45.41 |
| Means... | ... | ... | 16 23 9.61 | 116 14 33.81 | m^2 Herculis. | | | | |
| ϕ Ophiuchi. | | | | | June 19 | Q | ... | 16 33 59.50 | 85 30 57.73 |
| July 23 | Q | ... | 16 23 28.32 | 106 19 1.74 | ζ Herculis. | | | | |
| λ Ophiuchi. | | | | | June 22 | Q | ... | 16 36 13.99 | 58 9 10.25 |
| June 28 | Q | ... | 16 24 9.33 | 87 43 12.60 | 23 | Q | ... | ..... | 10.08 |
| July 11 | Q | ... | 9.33 | 13.39 | July 11 | Q | ... | 14.13 | 9.02 |
| Means... | ... | ... | 16 24 9.33 | 87 43 13.00 | 16 | Q | ... | 14.11 | 10.88 |
| ω Ophiuchi. | | | | | 18 | Q | ... | 14.01 | 9.07 |
| May 28 | Q | ... | 16 24 11.68 | 111 10 36.84 | Aug. 7 | Q | ... | ..... | 10.62 |
| 29 | Q | 5.5 | 11.81 | 33.94 | Nov. 9 | Q | ... | 14.09 | 13.10 |
| Means... | 5.5 | ... | 16 24 11.75 | 111 10 35.39 | 17 | Q | ... | 14.16 | 11.41 |
| B.A.C. 5528. | | | | | 19 | Q | ... | 14.07 | 12.96 |
| June 2 | Q | ... | 16 24 59.83 | 105 41 35.83 | 20 | Q | ... | 14.01 | 10.74 |
| h Herculis. | | | | | 26 | Q | ... | ..... | 11.32 |
| June 19 | Q | ... | 16 26 20.03 | 78 13 18.38 | 30 | Q | ... | 14.07 | 9.54 |
| 22 | Q | ... | 19.89 | 17.48 | Dec. 7 | Q | ... | 14.18 | 9.40 |
| Means... | ... | ... | 16 26 19.96 | 78 13 17.93 | 18 | Q | ... | 14.09 | 10.76 |
| | | | | | Means... | ... | ... | 16 36 14.08 | 58 9 10.65 |
| | | | | | <i>Reflexion.</i> | | | | |
| | | | | | June 23 | Q | ... | ..... | 58 9 13.37 |
| | | | | | B.A.C. 5608. | | | | |
| | | | | | July 14 | Q | ... | 16 37 32.59 | 116 23 51.62 |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-----------------------------|-----------|-------------|-------------------------------|---------------------------------|-----------------|-----------|-------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| B.A.C. 5634. | | | | | κ Ophiuchi. | | | | |
| June 7 | Q | 7.4 | 16 41 48.06 | 78 37 43.17 | June 23 | Q | ... | 16 51 19.47 | 80 24 49.79 |
| July 19 | Q | ... | 48.19 | 41.25 | 25 | Q | ... | 19.60 | ..... |
| Means... | 7.4 | 16 41 48.13 | 78 37 42.21 | | 28 | Q | ... | 19.54 | 48.32 |
| B.A.C. 5641. | | | | | July 23 | Q | ... | ..... | 48.50 |
| May 29 | Q | 7.0 | 16 43 10.91 | 114 36 0.99 | 30 | Q | ... | 19.60 | 51.25 |
| B.A.C. 5642. | | | | | Means... | ... | 16 51 19.55 | 80 24 49.47 | |
| July 23 | Q | ... | 16 43 13.76 | 106 18 44.63 | ε Herculis. | | | | |
| 48 Herculis. | | | | | June 7 | Q | ... | 16 55 9.85 | 58 52 27.53 |
| July 20 | M | 6.3 | 16 44 2.60 | 59 48 15.09 | 8 | Q | ... | 9.82 | 27.45 |
| W.B. (2) XVI. 1415. | | | | | July 9 | Q | ... | 10.00 | 27.83 |
| June 8 | Q | 7.2 | 16 45 58.29 | 69 11 57.46 | 11 | Q | ... | 9.79 | ..... |
| July 11 | Q | ... | 58.23 | 57.51 | 12 | Q | ... | 9.75 | 28.28 |
| 12 | Q | ... | 58.33 | 58.85 | 20 | M | ... | 9.85 | 27.61 |
| Means... | 7.2 | 16 45 58.28 | 69 11 57.94 | | 21 | Q | ... | 9.69 | 26.61 |
| B.A.C. 5687. | | | | | Means... | ... | 16 55 9.82 | 58 52 27.55 | |
| July 14 | Q | ... | 16 47 31.02 | 115 18 50.93 | 28 Ophiuchi. | | | | |
| B.A.C. 5700. (2nd star.) | | | | | June 29 | M | 7.0 | 16 55 46.15 | 115 30 8.66 |
| July 18 | Q | ... | 16 49 11.54 | 109 19 28.29 | July 10 | Q | ... | 46.07 | 14.59 |
| 56 Herculis. | | | | | Means... | 7.0 | 16 55 46.11 | 115 30 11.63 | |
| June 26 | Q | ... | ..... | 64 3 4.29 | B.A.C. 5767. | | | | |
| Reflexion. | | | | | June 26 | Q | ... | 16 59 43.80 | 114 48 59.78 |
| June 26 | Q | ... | ..... | 64 3 7.26 | ε Ursæ Minoris. | | | | |
| B.A.C. 5704. | | | | | June 22 | Q | ... | ..... | 7 44 50.28 |
| June 29 | M | 8.0 | 16 50 1.14 | | 23 | Q | ... | ..... | 55.17 |
| | | | | | Mean... | ... | ..... | 7 44 52.73 | |
| | | | | | Reflexion. | | | | |
| | | | | | June 22 | Q | ... | ..... | 7 44 53.30 |
| | | | | | 23 | Q | ... | ..... | 50.99 |
| | | | | | Mean... | ... | ..... | 7 44 52.15 | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|---------------------|-----------|------------|-------------------------------|---------------------------------|-----------------------------|-----------|-------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| B.A.C. 5771. | | | | | α Herculis. | | | | |
| July 20 | M | 6.5 | 17 0 28.17 | 107 25 39.76 | July 9 | Q | ... | 17 8 32.22 | 75 27 15.72 |
| | | | | | 14 | Q | ... | 32.21 | 16.82 |
| | | | | | 20 | M | ... | 32.33 | 16.06 |
| B.A.C. 5774. | | | | | Nov. 9 | Q | ... | ..... | 16.41 |
| June 8 | Q | 6.8 | 17 1 18.89 | 90 54 0.02 | Dec. 18 | Q | ... | 32.10 | 14.25 |
| | | | | | 31 | Q | ... | 32.35 | 15.35 |
| | | | | | Means... | ... | 17 8 32.24 | 75 27 15.77 | |
| η Ophiuchi. | | | | | * | | | | |
| May 29 | Q | ... | 17 2 41.69 | 105 33 23.26 | June 28 | Q | ... | 17 10 7.37 | 66 6 19.81 |
| June 19 | Q | ... | 41.66 | 19.81 | B.A.C. 5838. | | | | |
| 28 | Q | ... | 41.67 | 19.60 | June 29 | M | 8.0 | 17 11 57.00 | 119 13 16.35 |
| 29 | M | ... | 41.63 | 18.85 | ξ Ophiuchi. | | | | |
| July 30 | Q | ... | 41.81 | 19.66 | June 25 | Q | ... | 17 12 58.44 | 110 57 55.38 |
| Means... | ... | 17 2 41.69 | 105 33 20.24 | | 26 | Q | ... | 58.58 | 54.91 |
| Radcliffe 3685. | | | | | Means... | ... | 17 12 58.51 | 110 57 55.15 | |
| June 27 | Q | ... | ..... | 5 7 12.77 | θ Ophiuchi. | | | | |
| July 10 | Q | 7.7 | ..... | 13.40 | June 19 | Q | ... | 17 13 46.90 | 114 51 42.35 |
| 11 | Q | ... | ..... | 13.01 | July 18 | Q | ... | 46.84 | 42.69 |
| 12 | Q | 7.8 | ..... | 13.08 | 23 | Q | ... | ..... | 43.60 |
| 19 | Q | ... | ..... | 12.66 | Means... | ... | 17 13 46.87 | 114 51 42.88 | |
| Means... | 7.7 | ..... | 5 7 12.98 | | B.A.C. 5856. | | | | |
| Radcliffe 3685 S.P. | | | | | June 23 | Q | ... | 17 14 24.51 | 71 48 9.21 |
| Feb. 10 | Q | 8.0 | ..... | -5 7 13.08 | July 20 | M | 5.8 | 24.54 | 9.03 |
| 21 | Q | ... | ..... | 12.78 | Means... | 5.8 | 17 14 24.53 | 71 48 9.12 | |
| Means... | 8.0 | ..... | -5 7 12.92 | | B.A.C. 5866. | | | | |
| W.B. (2) XVII. 136. | | | | | July 12 | Q | ... | 17 16 41.27 | 111 18 46.14 |
| June 26 | Q | 8.0 | 17 6 25.52 | 69 42 21.88 | Oeltz. Arg. (S.Z.) 16772-3. | | | | |
| A Ophiuchi. | | | | | July 14 | Q | ... | 17 18 31.72 | 116 12 37.33 |
| July 21 | Q | ... | 17 7 6.39 | 116 24 1.88 | | | | | |

52 *Separate Results for Mean R.A. and Mean N.P.D. of Stars*

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|--------------------|----------------|----------------|-------------------------------|---------------------------------|---------------------|----------------|----------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| B.A.C. 5878. | | | | | <i>α</i> Ophiuchi. | | | | |
| June 29 | M | 7 ^o | 17 18 37 ⁷⁹ | 115 49 14 ³¹ | Jan. 2 | Q | ... | ..... | 77 20 23 ⁶⁰ |
| | | | | | 8 | Q | ... | 17 28 42 ⁸³ | 23 ⁷⁵ |
| B.A.C. 5880. | | | | | June 27 | Q | ... | 42 ⁸⁷ | 23 ⁵³ |
| June 22 | Q | ... | ..... | 111 20 52 ⁵⁶ | July 10 | Q | ... | 42 ⁹⁰ | 23 ⁵³ |
| B.A.C. 5894. | | | | | 19 | Q | ... | 42 ⁸⁷ | 21 ⁶⁷ |
| July 20 | M | 6 ^o | 17 19 50 ⁹⁴ | 82 17 2 ⁹⁵ | Aug. 3 | Q | ... | ..... | 23 ⁴¹ |
| <i>σ</i> Ophiuchi. | | | | | 21 | Q | ... | 42 ⁹⁶ | 24 ⁰³ |
| June 28 | Q | ... | 17 19 51 ⁹⁹ | 85 44 25 ⁶⁶ | Nov. 17 | Q | ... | 42 ⁸³ | 26 ⁶⁹ |
| July 10 | Q | ... | 52 ⁰⁹ | 24 ⁸⁹ | 19 | Q | ... | 42 ⁸² | 25 ¹² |
| 19 | Q | ... | 51 ⁹⁶ | 25 ⁶³ | 20 | Q | ... | 42 ⁸⁷ | 26 ³⁹ |
| Aug. 21 | Q | ... | 52 ⁰³ | 25 ⁸⁸ | Dec. 8 | Q | ... | 42 ⁹³ | 23 ⁶⁹ |
| Means... | ... | ... | 17 19 52 ⁰² | 85 44 25 ⁵² | Means... | ... | ... | 17 28 42 ⁸⁷ | 77 20 24 ¹³ |
| B.A.C. 5905. | | | | | Groombridge 2456. | | | | |
| Aug. 8 | Q | ... | 17 22 47 ¹⁰ | 105 31 34 ⁴⁷ | June 19 | Q | ... | ..... | 9 44 57 ¹⁵ |
| B.A.C. 5927. | | | | | <i>Reflexion.</i> | | | | |
| July 14 | Q | 6 ⁴ | 17 25 51 ⁰³ | 58 44 24 ¹¹ | June 19 | Q | ... | ..... | 9 44 57 ³⁶ |
| 78 Herculis. | | | | | Radclyffe 3749. | | | | |
| July 20 | M | 6 ^o | 17 26 33 ⁹⁸ | 61 29 37 ⁰³ | June 29 | M | ... | ..... | 5 16 43 ⁸⁸ |
| 52 Ophiuchi. | | | | | July 14 | Q | ... | ..... | 44 ⁴⁴ |
| June 25 | Q | ... | 17 27 14 ⁸⁰ | 111 57 1 ⁰³ | 21 | Q | ... | ..... | 46 ¹⁷ |
| 29 | M | 7 ^o | 14 ⁹⁴ | 56 56 ⁵⁵ | 30 | Q | ... | ..... | 46 ²⁷ |
| July 18 | Q | ... | 14 ⁸⁸ | 58 ⁰⁸ | Mean... | ... | ... | ..... | 5 16 45 ¹⁹ |
| Means... | 7 ^o | ... | 17 27 14 ⁸⁷ | 111 56 58 ⁵⁵ | Radclyffe 3749 S.P. | | | | |
| 54 Ophiuchi. | | | | | Jan. 31 | Q | ... | ..... | -5 16 44 ³⁸ |
| June 23 | Q | ... | 17 28 11 ⁸⁴ | 76 44 38 ⁷⁹ | Feb. 12 | Q | 7 ⁵ | ..... | 42 ⁴⁵ |
| | | | | | 13 | Q | 7 ⁵ | ..... | 42 ⁰¹ |
| | | | | | 17 | Q | ... | ..... | 44 ⁰¹ |
| | | | | | 19 | Q | ... | ..... | 43 ⁷⁵ |
| | | | | | 28 | Q | .. | ..... | 44 ⁷⁹ |
| | | | | | Mean... | 7 ⁵ | ... | ..... | -5 16 43 ⁵⁷ |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866 Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|--------------------|-----------|------|-------------------------------|---------------------------------|---|-----------|------|------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| 58 Ophiuchi. | | | | | ψ^1 Draconis. <i>Reflexion.</i> | | | | |
| June 26 | Q | ... | 17 35 24.07 | 111 36 52.20 | June 28 | Q | ... | ..... | 17 47 11.67 |
| July 12 | Q | ... | 24.15 | 50.53 | July 12 | Q | ... | ..... | 17.85 |
| Means... | ... | ... | 17 35 24.11 | 111 36 51.37 | Mean... | ... | ... | ..... | 17 47 14.76 |
| B.A.C. 5988. | | | | | Radcliffe 3798. | | | | |
| June 22 | Q | ... | 17 35 35.19 | 65 25 6.90 | July 18 | Q | ... | ..... | 3 1 52.32 |
| β Ophiuchi. | | | | | Radcliffe 3798 S.P. | | | | |
| June 27 | Q | ... | 17 36 51.23 | 85 22 26.60 | Feb. 27 | Q | ... | ..... | -3 1 50.95 |
| July 11 | Q | ... | 51.24 | 27.37 | W.B. (2) XVII. 1433. | | | | |
| Aug. 8 | Q | ... | 51.22 | 27.11 | June 19 | Q | ... | ..... | 67 38 40.35 |
| 21 | Q | ... | 51.15 | 26.28 | <i>Reflexion.</i> | | | | |
| Means... | ... | ... | 17 36 51.21 | 85 22 26.84 | June 19 | Q | ... | ..... | 67 38 44.83 |
| μ Herculis. | | | | | W.B. (2) XVII. 1484. | | | | |
| June 23 | Q | ... | 17 41 12.83 | 62 11 55.78 | June 26 | Q | 7.5 | 17 46 55.70 | 64 58 23.90 |
| July 19 | Q | ... | 12.78 | 56.65 | B.A.C. 6069. | | | | |
| Aug. 9 | Q | ... | 12.89 | 54.23 | June 23 | Q | ... | 17 49 28.71 | 89 18 22.10 |
| 23 | Q | ... | 12.85 | 57.62 | July 11 | Q | ... | 28.79 | 23.80 |
| Means... | ... | ... | 17 41 12.84 | 62 11 56.07 | Means... | ... | ... | 17 49 28.75 | 89 18 22.95 |
| B.A.C. 6027. | | | | | 89 Herculis | | | | |
| June 29 | M | 7.5 | 17 42 59.98 | 112 52 29.82 | June 27 | Q | ... | 17 50 0.70 | 63 55 36.36 |
| Lalande 32621. | | | | | July 10 | Q | ... | 0.83 | 37.82 |
| July 30 | Q | 7.0 | 17 43 58.99 | 69 2 4.15 | 20 | M | ... | 0.76 | 36.22 |
| Lalande 32626. | | | | | Aug. 8 | Q | ... | 0.76 | 36.71 |
| July 21 | Q | ... | 17 44 13.29 | 69 5 12.90 | 21 | Q | ... | 0.79 | 36.47 |
| ψ^1 Draconis. | | | | | Means... | ... | ... | 17 50 0.77 | 63 55 36.72 |
| June 28 | Q | ... | ..... | 17 47 14.48 | B.A.C. 6072. | | | | |
| July 12 | Q | ... | ..... | 11.48 | June 22 | Q | ... | 17 50 8.87 | 118 44 25.93 |
| Mean... | ... | ... | ..... | 17 47 12.98 | | | | | |

54 *Separate Results for Mean R.A. and Mean N.P.D. of Stars*

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-----------------------------|-----------|------|-------------------------------|---------------------------------|-------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| W.B. (2) XVII. 1649. | | | | | 72 Ophiuchi. | | | | |
| July 30 | Q | ... | 17 52 1'02 | 69 38 16'68 | June 25 | Q | ... | 18 0 59'66 | 80 27 8'77 |
| Aug. 9 | Q | ... | 0'92 | 16'14 | July 12 | Q | ... | ..... | 7'70 |
| Means... | ... | ... | 17 52 0'97 | 69 38 16'41 | 30 | Q | ... | 59'78 | 9'95 |
| γ Draconis. | | | | | Aug. 8 | Q | ... | 59'77 | 8'72 |
| Jan. 8 | Q | ... | 17 53 29'70 | 38 29 40'41 | 9 | Q | ... | 59'70 | 8'71 |
| Nov. 20 | Q | ... | 29'82 | 42'60 | 24 | Q | ... | 59'77 | 7'39 |
| 26 | Q | ... | 29'59 | 42'34 | Means... | ... | ... | 18 0 59'74 | 80 27 8'54 |
| Means... | ... | ... | 17 53 29'70 | 38 29 41'78 | <i>Reflexion.</i> | | | | |
| 67 Ophiuchi. | | | | | July 12 | Q | ... | ..... | 80 27 10'01 |
| July 21 | Q | ... | 17 53 56'12 | 87 3 31'31 | b Herculis. | | | | |
| Aug. 16 | Q | ... | 56'08 | 32'57 | June 28 | Q | ... | ..... | 59 27 19'31 |
| Means... | ... | ... | 17 53 56'10 | 87 3 31'94 | <i>Reflexion.</i> | | | | |
| γ ¹ Sagittarii. | | | | | June 28 | Q | ... | ..... | 59 27 18'41 |
| June 26 | Q | ... | 17 56 27'75 | 119 34 54'07 | 102 Herculis. | | | | |
| July 11 | Q | ... | 27'71 | 57'47 | July 10 | Q | ... | 18 3 1'67 | 69 12 15'83 |
| Means... | ... | ... | 17 56 27'73 | 119 34 55'77 | μ Sagittarii. | | | | |
| 70 Ophiuchi. (1st star.) | | | | | June 26 | Q | ... | 18 5 45'03 | 111 5 24'87 |
| June 23 | Q | ... | 17 58 40'83 | 82 27 58'04 | 27 | Q | ... | 45'05 | 24'17 |
| B.A.C. 6127. | | | | | July 11 | Q | ... | 45'09 | 24'22 |
| July 20 | M | 6'0 | 17 59 35'85 | 118 28 5'17 | 18 | Q | ... | 44'93 | 24'70 |
| 98 Herculis. | | | | | 19 | Q | ... | 45'08 | 24'03 |
| July 14 | Q | ... | ..... | 67 47 27'80 | Aug. 16 | Q | ... | 45'08 | 24'87 |
| <i>Reflexion.</i> | | | | | Means... | ... | ... | 18 5 45'04 | 111 5 24'48 |
| July 14 | Q | ... | ..... | 67 47 28'92 | 16 Sagittarii. | | | | |
| B.A.C. 6194. | | | | | Aug. 18 | Q | 6'0 | 18 7 14'64 | 110 25 26'41 |
| July 14 | Q | ... | 18 9 40'09 | 117 5 15'56 | B.A.C. 6194. | | | | |
| 20 | M | 5'8 | 40'01 | 14'81 | July 14 | Q | ... | 18 9 40'09 | 117 5 15'56 |
| Means... | 5'8 | ... | 18 9 40'05 | 117 5 15'19 | 20 | M | 5'8 | 40'01 | 14'81 |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|----------------------|-----------|-------------|-------------------------------|---------------------------------|-----------------------|-----------|-------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| W.B. (2) XVIII. 325. | | | | | λ Sagittarii. | | | | |
| July 30 | Q | ... | 18 12 17.80 | 68 3 11.56 | July 21 | Q | ... | 18 19 42.05 | 115 29 30.05 |
| | | | | | 30 | Q | ... | 42.04 | 29.54 |
| η Serpentis. | | | | | Means... | ... | 18 19 42.05 | 115 29 29.80 | |
| June 26 | Q | ... | 18 14 22.57 | 92 55 48.81 | 24 Ursæ Minoris. | | | | |
| July 7 | Q | ... | ..... | 51.17 | July 14 | Q | ... | ..... | 3 1 7.09 |
| 12 | Q | ... | 22.71 | 51.16 | <i>Reflexion.</i> | | | | |
| Aug. 8 | Q | ... | 22.66 | 52.26 | July 14 | Q | ... | ..... | 3 1 2.31 |
| 9 | Q | ... | 22.55 | 50.86 | 24 Ursæ Minoris S. P. | | | | |
| 22 | Q | ... | ..... | 50.98 | Jan. 22 | Q | ... | ..... | -3 1 4.98 |
| Means... | ... | 18 14 22.62 | 92 55 50.87 | | Mar. 2 | Q | ... | ..... | 2.63 |
| B.A.C. 6234. | | | | | 5 | Q | ... | ..... | 2.45 |
| Aug. 18 | Q | 7.0 | 18 15 12.42 | 61 4 28.51 | Mean... | ... | ..... | -3 1 3.35 | |
| δ Ursæ Minoris. | | | | | B.A.C. 6287. | | | | |
| Jan. 8 | Q | ... | 18 15 33.42 | 3 23 45.52 | July 19 | Q | ... | 18 22 19.17 | 108 48 38.73 |
| July 20 | M | ... | ..... | (48.02) | Aug. 24 | Q | ... | 19.48 | 38.99 |
| Aug. 24 | Q | ... | ..... | 45.84 | Means... | ... | 18 22 19.33 | 108 48 38.86 | |
| Dec. 8 | Q | ... | ..... | 44.46 | B.A.C. 6293. | | | | |
| Means... | ... | 18 15 33.42 | 3 23 45.27 | | Aug. 4 | Q | 7.6 | 18 23 32.49 | 108 21 3.46 |
| δ Ursæ Minoris S. P. | | | | | 8 | Q | ... | 32.53 | 4.88 |
| Jan. 9 | Q | ... | 18 15 33.65 | -3 23 44.03 | 9 | Q | ... | 32.61 | 3.75 |
| 11 | Q | ... | ..... | 41.13 | 18 | Q | 7.6 | 32.77 | 5.30 |
| 12 | Q | ... | ..... | 44.24 | Means... | 7.6 | 18 23 32.60 | 108 21 4.35 | |
| 16 | Q | ... | ..... | 43.77 | B.A.C. 6304. | | | | |
| Means... | ... | 18 15 33.65 | -3 23 43.29 | | July 20 | M | 7.0 | 18 25 2.97 | 114 12 11.39 |
| W.B. (2) XVIII. 446. | | | | | Lalande' 34322. | | | | |
| Aug. 16 | Q | 8.0 | 18 16 18.81 | 68 47 34.06 | June 28 | Q | ... | 18 25 50.50 | 67 6 31.04 |
| W.B. (2) XVIII. 475. | | | | | | | | | |
| July 11 | Q | ... | 18 17 13.08 | 69 6 9.98 | | | | | |

56 *Separate Results for Mean R.A. and Mean N.P.D. of Stars*

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-----------------------|-----------|------|-------------------------------|---------------------------------|------------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| B.A.C. 6321. | | | | | 4 Aquilæ. | | | | |
| Aug. 16 | Q | ... | 18 27 26.43 | 119 48 3.76 | Aug. 16 | Q | 5.7 | 18 38 4.13 | 88 4 24.67 |
| B.A.C. 6324. | | | | | 28 Sagittarii. | | | | |
| July 30 | Q | ... | 18 27 35.67 | 101 4 41.50 | July 20 | M | 6.0 | 18 38 15.69 | 112 31 41.92 |
| α Lyrae. | | | | | Σ 2391. (2nd star.) | | | | |
| Jan. 2 | Q | ... | ..... | 51 20 22.36 | June 28 | Q | ... | 18 41 28.87 | 96 9 5.03 |
| 8 | Q | ... | 18 32 24.12 | 21.99 | Rumker 6744. | | | | |
| 14 | Q | ... | 24.33 | 23.52 | July 21 | Q | ... | 18 42 38.27 | 66 26 13.97 |
| 18 | Q | ... | 24.09 | 24.23 | 30 Sagittarii. | | | | |
| 22 | Q | ... | 24.04 | 22.06 | July 20 | M | 6.5 | 18 42 47.14 | 112 18 42.03 |
| July 7 | Q | ... | ..... | 22.22 | W.B. (2) XVIII. 1302. | | | | |
| 11 | Q | ... | ..... | 22.65 | July 12 | Q | ... | 18 43 13.64 | 68 58 52.85 |
| 21 | Q | ... | 24.07 | 22.08 | β Lyrae. | | | | |
| Aug. 22 | Q | ... | ..... | 21.15 | Aug. 16 | Q | ... | 18 45 7.89 | 56 47 29.10 |
| Dec. 8 | Q | ... | 24.09 | 21.92 | 18 | Q | ... | 7.90 | 28.29 |
| 10 | Q | ... | 24.06 | 22.87 | 23 | Q | ... | 7.82 | 28.98 |
| 19 | Q | ... | 23.94 | 21.61 | 24 | Q | ... | 7.96 | 28.83 |
| 20 | Q | ... | ..... | 23.60 | Dec. 19 | Q | ... | 8.00 | 26.09 |
| 31 | Q | ... | 24.18 | 22.23 | Means... | ... | ... | 18 45 7.91 | 56 47 28.26 |
| Means... | ... | ... | 18 32 24.10 | 51 20 22.46 | 112 Herculis. | | | | |
| Piazzi xviii. 140. | | | | | July 11 | Q | ... | 18 46 32.98 | 68 44 1.28 |
| July 20 | M | 8.0 | 18 33 16.82 | 104 37 33.43 | Aug. 22 | Q | ... | 33.10 | 4.72 |
| B.A.C. 6358. | | | | | Means... | ... | ... | 18 46 33.04 | 68 44 3.00 |
| June 28 | Q | ... | 18 34 4.46 | 104 41 11.50 | B.A.C. 6448. | | | | |
| July 12 | Q | ... | 4.54 | 13.38 | July 20 | M | 6.5 | 18 47 53.82 | 113 20 26.27 |
| Aug. 4 | Q | ... | 4.32 | 10.35 | Aug. 9 | Q | ... | 53.79 | 24.37 |
| 9 | Q | ... | 4.56 | 11.86 | Means... | ... | ... | 18 47 53.81 | 113 20 25.32 |
| Means... | ... | ... | 18 34 4.47 | 104 41 11.77 | | | | | |
| W.B. (2) XVIII. 1099. | | | | | | | | | |
| Aug. 18 | Q | 7.5 | 18 37 2.77 | 69 27 6.84 | | | | | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|----------------------------|-----------|-------------|-------------------------------|---------------------------------|---------------------------|-----------|-------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| B.A.C. 6450. | | | | | ° Sagittarii (concluded). | | | | |
| July 18 | Q | ... | 18 48 27.30 | 113 18 50.48 | July 21 | Q | ... | 18 56 39.19 | 111 56 0.77 |
| | | | | | Aug. 22 | Q | ... | 39.09 | 2.34 |
| θ Serpentis. | | | | | Means... | ... | 18 56 39.13 | 111 56 2.46 | |
| July 10 | Q | ... | 18 49 33.13 | 85 58 1.54 | Radcliffe 4208. | | | | |
| ξ ² Sagittarii. | | | | | Aug. 18 | Q | 6.8 | ..... | 3 27 51.19 |
| June 28 | Q | ... | 18 49 44.12 | 111 16 44.15 | Radcliffe 4208 S.P. | | | | |
| δ ³ Lyræ. | | | | | Mar. 12 | Q | 7.0 | ..... | -3 27 48.79 |
| July 19 | Q | ... | ..... | 53 16 14.66 | ζ Aquilæ. | | | | |
| <i>Reflexion.</i> | | | | | Jan. 8 | Q | ... | 18 59 15.00 | 76 19 60.22 |
| July 19 | Q | ... | ..... | 53 16 18.19 | July 10 | Q | ... | 14.84 | 56.75 |
| ι ι Aquilæ. | | | | | 20 | M | ... | 15.00 | 60.16 |
| July 20 | M | 5.5 | 18 52 55.56 | 76 33 12.94 | Aug. 4 | Q | ... | ..... | 57.38 |
| ε Aquilæ. | | | | | 7 | Q | ... | ..... | 59.78 |
| July 12 | Q | ... | 18 53 32.31 | 75 6 40.43 | 16 | Q | ... | 15.01 | 60.62 |
| 30 | Q | ... | 32.29 | 40.85 | 23 | Q | ... | 15.15 | 60.40 |
| Means... | ... | 18 53 32.30 | 75 6 40.64 | | Means... | ... | 18 59 15.00 | 76 19 59.33 | |
| Σ 2426. (2nd star.) | | | | | π Sagittarii. | | | | |
| July 10 | Q | ... | 18 53 46.30 | 77 17 29.28 | Aug. 22 | Q | ... | 19 1 47.79 | 111 13 59.48 |
| λ Lyræ. | | | | | ε Lyræ. | | | | |
| July 11 | Q | ... | 18 54 57.65 | 58 2 24.77 | July 11 | Q | ... | 19 2 31.17 | 54 6 29.42 |
| 14 | Q | ... | 57.52 | 24.56 | 12 | Q | ... | 31.32 | 28.95 |
| Means... | ... | 18 54 57.59 | 58 2 24.67 | | 14 | Q | ... | 31.23 | 29.20 |
| ° Sagittarii. | | | | | Means... | ... | 19 2 31.24 | 54 6 29.19 | |
| June 28 | Q | ... | 18 56 39.22 | 111 56 1.66 | B.A.C. 6554. | | | | |
| July 18 | Q | ... | 39.01 | 5.08 | July 18 | Q | ... | 19 2 49.27 | 119 42 58.23 |
| ° Sagittarii. | | | | | W.B. (2) XIX. 131. | | | | |
| June 28 | Q | ... | 18 56 39.22 | 111 56 1.66 | July 10 | Q | 7.5 | 19 5 36.87 | 68 57 28.01 |
| July 18 | Q | ... | 39.01 | 5.08 | 19 | Q | ... | 37.19 | 29.03 |
| | | | | | Means... | 7.5 | 19 5 37.03 | 68 57 28.52 | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|-------------------------------|-----------|------|-------------------------------|---------------------------------|--------------------|-----------|------------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| ψ Sagittarii. | | | | | 3 Vulpeculæ. | | | | |
| Aug. 4 | Q | ... | ..... | 115 29 2'03 | July 21 | Q | ... | 19 17 21'69 | 63 59 33'37 |
| 9 | Q | ... | 19 7 19'43 | 2'54 | W.B. (2) XIX. 505. | | | | |
| Means... | ... | ... | 19 7 19'43 | 115 29 2'29 | July 12 | Q | ... | 19 17 35'45 | 69 40 52'58 |
| B.A.C. 6582. | | | | | δ Aquilæ. | | | | |
| July 12 | Q | ... | 19 9 30'95 | 68 59 58'45 | July 14 | Q | ... | 19 18 44'56 | 87 8 58'74 |
| 21 | Q | ... | 31'01 | 59'26 | B.A.C. 6664. | | | | |
| Means... | ... | ... | 19 9 30'98 | 68 59 58'86 | Aug. 18 | Q | 6'6 | 19 20 58'04 | 105 22 17'77 |
| d Sagittarii. | | | | | B.A.C. 6682. | | | | |
| Sept. 19 | Q | ... | 19 9 47'70 | 109 11 17'67 | July 18 | Q | 6'0 | 19 24 19'03 | 118 16 20'14 |
| W.P. (2) XIX. 283. | | | | | B.A.C. 6695. | | | | |
| July 18 | Q | 7'7 | 19 10 5'41 | 69 55 45'68 | July 21 | Q | ... | 19 26 12'92 | 69 21 11'41 |
| ω Aquilæ. | | | | | μ Aquilæ. | | | | |
| July 11 | Q | ... | 19 11 31'75 | 78 38 37'70 | July 20 | M | ... | 19 27 32'63 | ..... |
| 14 | Q | ... | 31'63 | 36'42 | h^2 Sagittarii. | | | | |
| Aug. 16 | Q | ... | 31'51 | 37'29 | July 20 | M | ... | 19 28 33'13 | ..... |
| 18 | Q | ... | 31'60 | 37'02 | 11 Cygni. | | | | |
| 23 | Q | ... | 31'66 | 36'35 | July 18 | Q | 6'0 | 19 30 59'49 | 53 21 5'11 |
| Means... | ... | ... | 19 11 31'63 | 78 38 36'96 | e^1 Sagittarii. | | | | |
| B.A.C. 6596. | | | | | July 20 | M | 6'0 | 19 33 2'58 | 106 35 49'29 |
| July 10 | Q | 7'2 | 19 11 39'89 | 89 49 0'11 | Aug. 22 | Q | ... | 2'63 | 50'56 |
| ν Sagittarii. | | | | | Means... | 6'0 | 19 33 2'61 | 106 35 49'93 | |
| Sept. 19 | Q | ... | 19 14 3'29 | 106 12 12'48 | ψ Aquilæ. | | | | |
| Σ 2504. (2nd star.) | | | | | July 21 | Q | ... | 19 38 20'12 | 77 0 56'73 |
| July 19 | Q | ... | 19 15 5'53 | 71 6 17'76 | | | | | |
| B.A.C. 6627. | | | | | | | | | |
| July 18 | Q | ... | 19 16 0'94 | 121 3 9'81 | | | | | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|----------------------|-----------|------|-------------------------------|---------------------------------|------------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| <i>f</i> Sagittarii. | | | | | Piazzi xix. 320. | | | | |
| Aug. 22 | Q | ... | 19 38 32.59 | 110 4 46.71 | July 21 | Q | ... | 19 47 28.86 | 70 0 32.59 |
| * | | | | | <i>β</i> Aquilæ. | | | | |
| July 18 | Q | 6.5 | 19 39 28.29 | 118 49 1.38 | Aug. 22 | Q | ... | ..... | 83 55 33.13 |
| <i>γ</i> Aquilæ. | | | | | Oct. 17 | Q | ... | 19 48 43.80 | 34.04 |
| Jan. 1 | Q | ... | 19 39 53.37 | 79 42 39.15 | Means... | ... | ... | 19 48 43.80 | 83 55 33.59 |
| 9 | Q | ... | 53.37 | 41.20 | Rumker 7853. | | | | |
| July 20 | M | ... | 53.27 | 39.30 | Sept. 24 | Q | 7.2 | 19 51 8.45 | 69 21 27.21 |
| Aug. 15 | Q | ... | ..... | 37.40 | <i>c</i> Sagittarii. | | | | |
| Means... | ... | ... | 19 39 53.34 | 79 42 39.26 | Aug. 10 | Q | ... | 19 54 24.97 | 118 4 46.45 |
| Radcliffe 4476. | | | | | Oct. 8 | Q | ... | 25.01 | 46.97 |
| Aug. 16 | Q | 7.8 | ..... | 4 11 40.85 | 16 | Q | ... | 24.85 | 47.03 |
| B.A.C. 6788. | | | | | Means... | ... | ... | 19 54 24.94 | 118 4 46.82 |
| Oct. 16 | Q | ... | 19 42 28.45 | 101 3 30.38 | 64 Sagittarii. | | | | |
| B.A.C. 6792. | | | | | Sept. 21 | Q | ... | 19 57 41.32 | 101 58 31.97 |
| Sept. 19 | Q | ... | 19 42 54.43 | 117 48 25.91 | <i>λ</i> Ursæ Minoris. | | | | |
| Oct. 8 | Q | ... | 54.58 | 30.41 | Aug. 10 | Q | ... | ..... | 1 5 40.62 |
| Means... | ... | ... | 19 42 54.51 | 117 48 28.16 | 18 | Q | ... | ..... | 38.12 |
| <i>α</i> Aquilæ. | | | | | 23 | Q | ... | ..... | 36.54 |
| Jan. 6 | Q | ... | 19 44 14.67 | 81 28 59.13 | 25 | M | ... | ..... | 36.39 |
| 9 | Q | ... | 14.61 | 57.19 | Oct. 17 | Q | ... | ..... | 35.84 |
| 28 | Q | ... | 14.74 | 59.22 | Means... | ... | ... | ..... | 1 5 37.50 |
| Feb. 5 | Q | ... | ..... | 60.97 | <i>Reflexion.</i> | | | | |
| 9 | Q | ... | 14.53 | 60.47 | Aug. 18 | Q | ... | ..... | 1 5 39.20 |
| 12 | Q | ... | 14.78 | 61.20 | Lalande 38423. | | | | |
| Aug. 18 | Q | ... | 14.79 | 59.25 | Aug. 24 | Q | 7.0 | 19 59 12.23 | 67 10 6.97 |
| 24 | Q | ... | 14.68 | 58.35 | Sept. 24 | Q | 7.4 | 12.11 | 8.08 |
| Sept. 21 | Q | ... | 14.74 | 58.43 | Means... | 7.2 | ... | 19 59 12.17 | 67 10 7.53 |
| Dec. 19 | Q | ... | 14.67 | 60.91 | | | | | |
| 29 | Q | ... | ..... | 60.37 | | | | | |
| 31 | Q | ... | 14.75 | ..... |  |  |  |  |  |
| Means... | ... | ... | 19 44 14.70 | 81 28 59.59 | | | | | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | | | Mean N.P.D. 1866, Jan. 1. | | | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | | | Mean N.P.D. 1866, Jan. 1. | | |
|-------------------------------|-----------|------|-------------------------------|----|-------|---------------------------------|----|-------|----------------------|-----------|------|-------------------------------|----|-------|---------------------------------|----|-------|
| | | | h. | m. | s. | o. | ' | " | | | | h. | m. | s. | o. | ' | " |
| Σ 2628. (2nd star.) | | | | | | | | | Lalande 39329. | | | | | | | | |
| Oct. 8 | Q | 6.5 | 20 | 1 | 22.88 | 80 | 59 | 12.99 | Sept. 24 | Q | 6.4 | 20 | 19 | 44.99 | 69 | 1 | 31.21 |
| B.A.C. 6927. | | | | | | | | | ρ Capricorni. | | | | | | | | |
| Sept. 19 | Q | 7.4 | 20 | 2 | 53.12 | 68 | 14 | 0.74 | Sept. 19 | Q | ... | 20 | 21 | 12.93 | 108 | 15 | 15.10 |
| | | | | | | | | | 21 | Q | ... | | | 12.72 |  |  | ..... |
| ξ^1 Capricorni. | | | | | | | | | Nov. 13 | Q | ... | | | 12.92 | | | 14.80 |
| Oct. 16 | Q | ... | 20 | 4 | 32.30 | 102 | 47 | 15.67 | Means... | ... | ... | 20 | 21 | 12.86 | 108 | 15 | 14.95 |
| 20 Vulpeenke. | | | | | | | | | B.A.C. 7063. | | | | | | | | |
| Sept. 24 | Q | 7.2 | 20 | 6 | 23.67 | 63 | 55 | 11.33 | Aug. 16 | Q | ... | 20 | 23 | 33.80 | 105 | 30 | 3.58 |
| Σ 2654. (2nd star.) | | | | | | | | | 1 Delphini. | | | | | | | | |
| Oct. 8 | Q | 7.0 | 20 | 8 | 9.35 | 93 | 54 | 24.34 | Oct. 15 | Q | ... | 20 | 23 | 53.03 | 79 | 33 | 2.51 |
| α^2 Capricorni. | | | | | | | | | ϵ Delphini. | | | | | | | | |
| Sept. 19 | Q | ... | 20 | 10 | 37.07 | 102 | 57 | 27.57 | Aug. 24 | Q | ... | 20 | 26 | 48.65 | 79 | 8 | 60.31 |
| 21 | Q | ... | | | 37.01 | | | 25.86 | Sept. 21 | Q | ... | | | 48.65 | | | 60.01 |
| Oct. 3 | Q | ... |  |  | ..... |  |  | 27.43 | 24 | Q | 5.0 | | | 48.51 | | | 58.90 |
| 16 | Q | ... | | | 37.00 | | | 28.95 | Oct. 8 | Q | ... |  |  | ..... |  |  | 60.85 |
| 17 | Q | ... | | | 37.06 | | | 27.98 | Means... | 5.0 | ... | 20 | 26 | 48.60 | 79 | 9 | 0.02 |
| Means... | ... | ... | 20 | 10 | 37.04 | 102 | 57 | 27.56 | Radeliffe 4881. | | | | | | | | |
| β Capricorni. | | | | | | | | | Oct. 8 | Q | 7.5 |  |  | ..... | 5 | 19 | 55.48 |
| Oct. 8 | Q | ... |  |  | ..... | 105 | 12 | 6.48 | Radeliffe 4894. | | | | | | | | |
| Nov. 13 | Q | ... | 20 | 13 | 28.98 | | | 9.03 | Oct. 16 | Q | ... |  |  | ..... | 5 | 18 | 7.41 |
| Means... | ... | ... | 20 | 13 | 28.98 | 105 | 12 | 7.76 | Radeliffe 4894 S.P. | | | | | | | | |
| W.B. (2) XX. 517. | | | | | | | | | Feb. 23 | Q | ... |  |  | ..... | -5 | 18 | 3.19 |
| Aug. 24 | Q | 7.3 | 20 | 14 | 50.14 | 68 | 8 | 42.95 | Mar. 13 | Q | 7.3 |  |  | ..... |  |  | 5.49 |
| B.A.C. 7009. | | | | | | | | | 14 | Q | ... |  |  | ..... |  |  | 5.81 |
| Aug. 25 | M | 5.8 | 20 | 15 | 56.60 | 104 | 41 | 0.07 | Means... | 7.3 | ... |  |  | ..... | -5 | 18 | 4.83 |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866 Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|----------------------|-----------|-------------|-------------------------------|---------------------------------|---------------------|-----------|-------------|------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| β Delphini. | | | | | ϵ Aquarii. | | | | |
| Aug. 18 | Q | ... | ..... | 75 52 9'18 | Aug. 10 | Q | ... | 20 40 25'09 | 99 59 3'49 |
| | | | | | 24 | Q | ... | 25'08 | 3'03 |
| | | | | | 25 | M | ... | - | 3'36 |
| Aug. 18 | Q | ... | ..... | 72 52 13'77 | Oct. 8 | Q | ... | 25'27 | 3'13 |
| <i>Reflexion.</i> | | | | | 15 | Q | ... | 25'20 | 2'57 |
| δ Delphini. | | | | | 17 | Q | ... | 25'26 | 1'82 |
| Aug. 16 | Q | ... | 20 31 24'49 | 79 5 16'06 | 30 | Q | ... | 25'27 | 5'00 |
| τ^3 Capricorni. | | | | | Means... | ... | 20 40 25'20 | 99 59 3'20 | |
| Nov. 13 | Q | ... | 20 31 46'72 | 105 25 20'07 | B.A.C. 7210. | | | | |
| W.B. (1) XX. 827. | | | | | Aug. 16 | Q | 7'0 | 20 42 3'29 | 117 51 40'04 |
| Aug. 25 | M | 7'0 | 20 32 51'91 | 74 37 50'85 | μ Aquarii. | | | | |
| α Delphini. | | | | | Aug. 24 | Q | 6'0 | 20 45 25'44 | 99 29 2'66 |
| Oct. 15 | Q | ... | 20 33 24'86 | 74 33 29'36 | Oct. 17 | Q | ... | 25'53 | 1'23 |
| 17 | Q | ... | 24'73 | 30'71 | Means... | 6'0 | 20 45 25'49 | 99 29 1'95 | |
| Means... | ... | 20 33 24'80 | 74 33 30'04 | | B.A.C. 7244. | | | | |
| W.B. (2) XX. 1155. | | | | | Oct. 22 | Q | 7'0 | 20 46 8'51 | 114 47 2'59 |
| Aug. 24 | Q | 8'0 | 20 34 20'50 | 69 36 5'19 | 32 Vulpeculæ. | | | | |
| α Cygni. | | | | | Aug. 18 | Q | ... | 20 48 50'94 | 62 27 3'22 |
| Jan. 9 | Q | ... | 20 36 51'81 | 45 11 49'95 | Sept. 21 | Q | ... | 50'87 | 1'05 |
| Sept. 24 | Q | ... | 51'71 | 49'93 | 24 | Q | ... | 50'91 | 1'37 |
| Means... | ... | 20 36 51'76 | 45 11 49'94 | | Oct. 19 | Q | ... | 50'99 | 3'67 |
| B.A.C. 7181. | | | | | 30 | Q | ... | 50'91 | 3'72 |
| Oct. 19 | Q | ... | 20 38 26'01 | 117 20 48'60 | Means... | ... | 20 48 50'92 | 62 27 2'61 | |
| | | | | | 16 Delphini. | | | | |
| | | | | | Aug. 25 | M | 6'5 | 20 49 14'83 | 77 56 32'04 |
| | | | | | W.B. (2) XX. 1588. | | | | |
| | | | | | Oct. 8 | Q | 8'6 | 20 50 13'11 | 68 45 2'99 |

62 *Separate Results for Mean R.A. and Mean N.P.D. of Stars*

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | | | Mean N.P.D. 1866, Jan. 1. | | |
|--------------------|-----------|-------|-------------------------------|-------|-------|---------------------------------|-------|-------|
| | | | h. | m. | s. | ° | ' | " |
| W.B. (2) XX. 1611. | | | | | | | | |
| Aug. 10 | Q | ... | 20 | 51 | 5'12 | 66 | 50 | 22'43 |
| 1 Equulei. | | | | | | | | |
| Aug. 16 | Q | 5'8 | 20 | 52 | 22'58 | 86 | 13 | 2'29 |
| Radcliffe 5090. | | | | | | | | |
| Sept. 19 | Q | 7'6 | ..... |  |  | 4 | 50 | 12'19 |
| Oct. 15 | Q | ... | ..... |  |  |  |  | 12'10 |
| Nov. 13 | Q | 7'6 | ..... |  |  |  |  | 13'12 |
| Means... | 7'6 | ..... |  |  | 4 | 50 | 12'47 | |
| W.B. (2) XX. 1721. | | | | | | | | |
| Aug. 25 | M | 7'3 | 20 | 55 | 46'04 | 69 | 25 | 13'35 |
| W.B. (2) XX. 1739. | | | | | | | | |
| Oct. 19 | Q | 7'3 | 20 | 56 | 28'88 | 68 | 50 | 46'20 |
| 22 | Q | 8'0 | 28'96 | | | | | 44'94 |
| Means... | 7'7 | 20 | 56 | 28'92 | | 68 | 50 | 45'57 |
| θ Capricorni. | | | | | | | | |
| Aug. 10 | Q | ... | 20 | 58 | 24'57 | 107 | 45 | 47'14 |
| Sept. 17 | Q | ... | 24'77 | | | | | 46'79 |
| Oct. 16 | Q | ... | 24'71 | | | | | 48'85 |
| 30 | Q | ... | 24'80 | | | | | 47'63 |
| Means... | ... | 20 | 58 | 24'71 | | 107 | 45 | 47'60 |
| W.B. (2) XX. 1804. | | | | | | | | |
| Aug. 24 | Q | 7'7 | 20 | 58 | 33'05 | 69 | 38 | 56'72 |
| A Capricorni. | | | | | | | | |
| Oct. 8 | Q | ... | 20 | 59 | 17'03 | 115 | 32 | 21'15 |
| B.A.C. 7340. | | | | | | | | |
| Aug. 16 | Q | 7'0 | 21 | 1 | 25'60 | 114 | 9 | 59'43 |

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| | | | h. | m. | s. | ° | ' | " |
| ν Aquarii. | | | | | | | | |
| Sept. 21 | Q | ... | 21 | 2 | 17'54 | 101 | 54 | 43'23 |
| W.B. (2) XXI. 39. | | | | | | | | |
| Oct. 22 | Q | ... | 21 | 3 | 34'48 | 67 | 36 | 26'12 |
| B.A.C. 7356. | | | | | | | | |
| Oct. 19 | Q | 7'2 | 21 | 4 | 29'88 | 68 | 5 | 22'86 |
| ζ Cygni. | | | | | | | | |
| Jan. 9 | Q | ... | 21 | 7 | 13'93 | 60 | 19 | 18'94 |
| Aug. 10 | Q | ... | 14'00 | | | | | 16'47 |
| Sept. 17 | Q | ... | 14'17 | | | | | 15'55 |
| Oct. 6 | Q | ... | ..... |  |  |  |  | 16'97 |
| 23 | Q | ... | 14'10 | | | | | 18'73 |
| Nov. 13 | Q | ... | 13'97 | | | | | 18'80 |
| Means... | ... | 21 | 7 | 14'03 | | 60 | 19 | 17'58 |
| 14 Aquarii. | | | | | | | | |
| Oct. 8 | Q | 7'2 | 21 | 9 | 5'88 | 99 | 46 | 14'94 |
| 16 | Q | ... | 6'01 | | | | | 13'94 |
| Means... | 7'2 | 21 | 9 | 5'95 | | 99 | 46 | 14'44 |
| W.B. (2) XXI. 248. | | | | | | | | |
| Oct. 15 | Q | ... | 21 | 11 | 28'18 | 69 | 43 | 23'45 |
| ι Capricorni. | | | | | | | | |
| Aug. 16 | Q | ... | 21 | 14 | 46'90 | 107 | 24 | 9'77 |
| Sept. 17 | Q | ... | 46'80 | | | | | 10'22 |
| 19 | Q | ... | 46'95 | | | | | 9'26 |
| Oct. 22 | Q | ... | 46'86 | | | | | 11'31 |
| Means... | ... | 21 | 14 | 46'88 | | 107 | 24 | 10'14 |
| B.A.C. 7424. | | | | | | | | |
| Oct. 19 | Q | 6'7 | 21 | 16 | 27'41 | 113 | 19 | 8'66 |

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| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| B.A.C. 7437. | | | | | β Cephei. | | | | |
| Oct. 16 | Q | ... | 21 17 56.65 | 66 18 0.99 | Oct. 8 | Q | ... | | 20 1 40.80 |
| Lalande 41648. | | | | | <i>Reflexion.</i> | | | | |
| Aug. 24 | Q | 6.5 | 21 18 22.39 | 66 2 44.20 | Oct. 8 | Q | ... | ..... | 20 1 40.47 |
| Oct. 30 | Q | ... | 22.45 | 47.15 | ξ Aquarii. | | | | |
| Means... | 6.5 | | 21 18 22.42 | 66 2 45.68 | Aug. 24 | Q | 6.0 | 21 30 37.05 | 98 27 13.56 |
| B.A.C. 7444. | | | | | Sept. 21 | Q | ... | 37.05 | 12.71 |
| Nov. 13 | Q | 6.4 | 21 18 37.14 | 64 24 3.95 | Oct. 19 | Q | ... | 37.02 | 14.95 |
| B.A.C. 7451. | | | | | 31 | Q | ... | 37.03 | 15.81 |
| Oct. 31 | Q | 7.5 | 21 20 22.55 | 102 14 43.27 | Nov. 14 | Q | ... | 36.96 | 15.82 |
| B.A.C. 7470. | | | | | Means... | 6.0 | | 21 30 37.02 | 98.27 14.57 |
| Aug. 16 | Q | 6.7 | 21 23 19.89 | 104 52 34.45 | B.A.C. 7517. | | | | |
| β Aquarii. | | | | | Aug. 16 | Q | 7.0 | 21 30 53.14 | 105 30 42.63 |
| Sept. 19 | Q | ... | 21 24 30.12 | 96 9 31.97 | ϵ Pegasi. | | | | |
| Oct. 15 | Q | ... | 30.20 | 33.40 | Jan. 19 | Q | ... | 21 37 36.22 | 80 44 17.31 |
| 19 | Q | ... | 30.09 | 33.69 | Sept. 17 | Q | ... | 36.08 | 13.62 |
| 23 | Q | ... | 30.10 | 35.54 | Oct. 15 | Q | ... | 36.32 | 15.35 |
| Nov. 13 | Q | ... | 29.97 | 33.50 | 23 | Q | ... | 36.32 | 18.12 |
| Means... | ... | | 21 24 30.10 | 96 9 33.70 | Nov. 13 | Q | ... | 36.18 | 18.25 |
| Groombridge 3548. | | | | | Means... | ... | | 21 37 36.22 | 80 44 16.53 |
| Sept. 17 | Q | 7.5 | ..... | 3 31 26.74 | μ Cygni. | | | | |
| 21 | Q | ... | ..... | 23.85 | Sept. 19 | Q | ... | 21 38 8.89 | 61 51 40.40 |
| 24 | Q | 7.5 | ..... | 24.86 | Oct. 16 | Q | ... | ..... | 45.36 |
| Oct. 22 | Q | 7.5 | ..... | 27.55 | Means... | ... | | 21 38 8.89 | 61 51 42.88 |
| Means... | 7.5 |  | ..... | 3 31 25.75 | <i>Reflexion.</i> | | | | |
| Groombridge 3548 S.P. | | | | | Oct. 16 | Q | ... | | 61 51 44.54 |
| Mar. 27 | Q | ... | | -3 31 23.19 | λ Capricorni. | | | | |
| | | | | | Oct. 19 | Q | ... | 21 39 19.14 | 101 58 56.96 |

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|---------------------|-----------|------|-------------------------------|---------------------------------|---------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| δ Capricorni. | | | | | B.A.C. 7690. | | | | |
| Oct. 31 | Q | ... | 21 39 38.46 | 106 44 5.45 | Aug. 24 | Q | 7.2 | 21 59 3.37 | 96 0 22.25 |
| Nov. 14 | Q | ... | 38.49 | 3.73 | ξ Cephei. | | | | |
| Means... | ... | ... | 21 39 38.48 | 106 44 4.59 | Oct. 16 | Q | ... | ..... | 26 1 31.53 |
| ιι Cephei. | | | | | <i>Reflexion.</i> | | | | |
| Sept. 24 | Q | ... | ..... | 19 18 19.07 | Oct. 16 | Q | ... | ..... | 26 1 27.61 |
| <i>Reflexion.</i> | | | | | ι Pegasi. | | | | |
| Sept. 24 | Q | ... | ..... | 19 18 19.88 | Sept. 24 | Q | ... | ..... | 65 18 31.37 |
| ι6 Pegasi. | | | | | Oct. 8 | Q | ... | 22 0 46.30 | 29.66 |
| Sept. 19 | Q | ... | 21 46 57.78 | 64 42 14.26 | 19 | Q | ... | 46.36 | 31.02 |
| Oct. 8 | Q | ... | ..... | 17.87 | Nov. 3 | Q | ... | 46.15 | 30.67 |
| 23 | Q | ... | 57.90 | 17.73 | 6 | Q | ... | 46.22 | 31.54 |
| Means... | ... | ... | 21 46 57.84 | 64 42 16.62 | Means... | ... | ... | 22 0 46.26 | 65 18 30.85 |
| <i>Reflexion.</i> | | | | | <i>Reflexion.</i> | | | | |
| Oct. 8 | Q | ... | ..... | 64 42 13.89 | Sept. 24 | Q | ... | ..... | 65 18 29.75 |
| W.B. (2) XXI. 1265. | | | | | B.A.C. 7729. | | | | |
| Oct. 19 | Q | 7.7 | 21 52 14.55 | 69 43 25.22 | Sept. 17 | Q | 6.5 | 22 3 51.45 | 117 48 33.30 |
| * | | | | | B.A.C. 7739. | | | | |
| Oct. 22 | Q | 8.5 | 21 53 48.93 | 37 47 13.93 | Oct. 22 | Q | ... | 22 5 1.60 | 117 44 40.60 |
| B.A.C. 7678. | | | | | 41 Aquarii. | | | | |
| Oct. 31 | Q | ... | ..... | 10 19 50.21 | Aug. 24 | Q | 6.0 | 22 6 53.68 | 111 44 21.81 |
| <i>Reflexion.</i> | | | | | θ Aquarii. | | | | |
| Oct. 31 | Q | ... | | 10 19 46.68 | Oct. 8 | Q | ... | 22 9 45.57 | 98 26 57.88 |
| α Aquarii. | | | | | W.B. (2) XXII. 279. | | | | |
| Nov. 16 | Q | ... | | 90 58 15.32 | Sept. 19 | Q | 7.7 | 22 12 30.21 | 64 53 47.05 |

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| | | | h. m. s. | ° ' " |
| γ Aquarii. | | | | |
| Sept. 17 | Q | ... | 22 14 44 ⁰ .4 | 92 3 39 ⁸ .6 |
| Oct. 22 | Q | ... | 44 ⁰ .4 | 42 ³ .33 |
| 31 | Q | ... | 44 ⁰ .2 | 42 ⁶ .5 |
| Means... | ... | ... | 22 14 44 ⁰ .3 | 92 3 41 ⁶ .1 |
| ζ Aquarii. | | | | |
| Sept. 19 | Q | 6.5 | 22 21 55 ⁸ .3 | 90 42 18 ⁵ .9 |
| Σ 2913. (2nd star.) | | | | |
| Oct. 31 | Q | 7.7 | 22 23 29 ⁶ .7 | 98 48 2 ⁹ .4 |
| Groombridge 3820. | | | | |
| Oct. 19 | Q | ... | ..... | 4 34 7 ⁵ .7 |
| 30 | Q | ... | ..... | 8 ⁷ .3 |
| Nov. 6 | Q | ... | ..... | 8 ⁸ .1 |
| Mean... | ... | ... | ..... | 4 34 8 ³ .7 |
| Groombridge 3820 S.P. | | | | |
| Mar. 16 | ... | ... | ..... | -4 34 8 ³ .0 |
| Apr. 13 | ... | 5.5 | ..... | 4 ⁴ .9 |
| Means... | ... | 5.5 | ..... | -4 34 6 ⁴ .0 |
| σ Aquarii. | | | | |
| Sept. 24 | Q | ... | 22 23 33 ³ .4 | 101 21 45 ¹ .0 |
| Oct. 8 | Q | ... | 33 ² .2 | 45 ¹ .9 |
| Means... | ... | ... | 22 23 33 ² .8 | 101 21 45 ¹ .5 |
| * | | | | |
| Sept. 17 | Q | 7.6 | 22 26 6 ⁰ .5 | 69 37 31 ⁵ .0 |
| η Aquarii. | | | | |
| Oct. 22 | Q | ... | 22 28 28 ¹ .5 | 90 48 25 ³ .0 |

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|-------------------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " |
| W.B. (2) XXII. 722. | | | | |
| Nov. 19 | Q | 7.1 | 22 32 1 ⁷ .1 | 69 28 8 ⁵ .2 |
| W.B. (2) XXII. 759. | | | | |
| Nov. 6 | Q | ... | 22 33 30 ³ .8 | 67 49 12 ⁴ .8 |
| 17 | Q | ... | 30 ⁴ .8 | 13 ² .4 |
| Means... | ... | ... | 22 33 30 ⁴ .3 | 67 49 12 ⁸ .6 |
| ζ Pegasi. | | | | |
| Sept. 24 | Q | ... | 22 34 46 ⁷ .9 | 79 52 1 ² .7 |
| Oct. 22 | Q | ... | 46 ⁷ .8 | 2 ² .6 |
| Dec. 13 | Q | ... | 46 ⁷ .1 | 1 ² .8 |
| Means... | ... | ... | 22 34 46 ⁷ .6 | 79 52 1 ⁶ .0 |
| W.B. (2) XXII. 876. | | | | |
| Oct. 30 | Q | 7.6 | 22 37 46 ⁶ .8 | 69 45 59 ⁴ .5 |
| Σ 2938. (1st star.) | | | | |
| Sept. 17 | Q | 9.6 | 22 38 9 ⁰ .2 | 93 21 24 ¹ .1 |
| B.A.C. 7951. (2nd star.) | | | | |
| Oct. 8 | Q | ... | 22 40 55 ⁶ .6 | 94 55 24 ⁶ .0 |
| μ Pegasi. | | | | |
| Sept. 24 | Q | ... | 22 43 32 ² .2 | 66 6 19 ⁸ .3 |
| Oct. 31 | Q | ... | ..... | 22 ¹ .4 |
| Nov. 17 | Q | ... | 32 ³ .0 | 21 ¹ .1 |
| 19 | Q | ... | 32 ² .3 | 21 ² .2 |
| Means... | ... | ... | 22 43 32 ² .5 | 66 6 21 ⁰ .8 |
| Reflection. | | | | |
| Oct. 31 | Q | ... | | 66 6 21 ¹ .3 |

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| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| α Cephei. | | | | | W.B. (2) XXII. 1279. | | | | |
| Sept. 19 | Q | ... | | 24 30 15.68 | Oct. 8 | Q | 6.8 | 22 56 31.60 | 69 48 2.92 |
| | | | | | Nov. 6 | Q | 7.2 | 31.64 | 5.25 |
| <i>Reflexion.</i> | | | | | Means... | | | | |
| Sept. 19 | Q | ... | ..... | 24 30 17.00 | | | 7.0 | 22 56 31.62 | 69 48 4.09 |
| B.A.C. 7975. | | | | | α Pegasi. | | | | |
| Oct. 30 | Q | 6.5 | 22 46 26.60 | 73 52 9.67 | Feb. 8 | Q | ... | ..... | 75 30 53.55 |
| | | | | | 12 | Q | ... | 22 58 5.38 | ..... |
| | | | | | 13 | Q | ... | 5.30 | 54.27 |
| W.B. (2) XXII. 1086. | | | | | Means... | | | | |
| Nov. 6 | Q | 7.6 | 22 47 25.63 | 62 5 6.68 | | | ... | 22 58 5.34 | 75 30 53.91 |
| B.A.C. 7986. | | | | | W.B. (2) XXII. 1342. | | | | |
| Nov. 20 | Q | 6.9 | 22 48 14.01 | 95 42 5.22 | Oct. 22 | Q | 8.0 | 22 59 19.21 | 59 59 58.41 |
| W.B. (2) XXII. 1138. | | | | | W.B. (2) XXII. 1349. | | | | |
| Oct. 8 | Q | 7.0 | 22 49 52.77 | 67 45 31.61 | Oct. 31 | Q | 8.2 | 22 59 36.90 | 69 37 39.64 |
| | | | | | Nov. 20 | Q | 7.8 | 36.89 | 41.76 |
| W.B. (2) XXII. 1151. | | | | | 21 | Q | 8.1 | 36.89 | 38.82 |
| Sept. 17 | Q | 8.3 | 22 50 33.59 | 66 1 59.79 | Means... | | | | |
| * | | | | | | | 8.0 | 22 59 36.89 | 69 37 40.07 |
| Nov. 21 | Q | 7.4 | 22 51 33.81 | 69 12 8.76 | W.B. (2) XXII. 1367. | | | | |
| Rumker 10773. | | | | | Sept. 24 | Q | 8.0 | 23 0 4.25 | 60 6 11.67 |
| Sept. 24 | Q | 8.3 | 22 52 34.27 | 67 28 29.38 | Oct. 16 | Q | ... | 4.25 | 13.28 |
| Nov. 19 | Q | 7.8 | 34.39 | 31.27 | Means... | | | | |
| Means... | | | | | | | 8.0 | 23 0 4.25 | 60 6 12.48 |
| | | 8.0 | 22 52 34.33 | 67 28 30.33 | W.B. (2) XXII. 1378-9. | | | | |
| 81 Aquarii. | | | | | Sept. 17 | Q | 6.5 | 23 0 52.23 | 69 35 15.29 |
| Nov. 17 | Q | ... | 22 54 25.52 | 97 46 47.03 | 57 Pegasi. | | | | |
| W.B. (2) XXII. 1265. | | | | | Nov. 19 | Q | 6.0 | 23 2 45.61 | 82 2 55.05 |
| Oct. 30 | Q | ... | 22 55 48.99 | 67 22 49.02 | W.B. (2) XXIII. 61. | | | | |
| | | | | | Oct. 8 | Q | ... | 23 4 41.72 | 60 41 4.61 |
| | | | | | Nov. 6 | Q | 7.7 | 41.68 | 6.63 |
| Means... | | | | | Means... | | | | |
| | | | | | | | 7.7 | 23 4 41.70 | 60 41 5.62 |

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| | | | h. | m. | s. | o. | ' | '' |
| Σ 2988. (1st star.) | | | | | | | | |
| Sept. 19 | Q | 8.0 | 23 | 4 | 58.58 | 102 | 39 | 36.72 |
| W.B. (2) XXIII. 169-70. | | | | | | | | |
| Sept. 17 | Q | 7.0 | 23 | 9 | 21.76 | 65 | 57 | 32.47 |
| 24 | Q | 7.0 | | | 21.83 | | | 33.72 |
| Means... | | 7.0 | 23 | 9 | 21.80 | 65 | 57 | 33.10 |
| γ Piscium. | | | | | | | | |
| Oct. 16 | Q | ... | 23 | 10 | 13.12 | 87 | 26 | 57.83 |
| 30 | Q | ... | | | 13.02 | | | 58.43 |
| 31 | Q | ... | | | 13.09 | | | 60.56 |
| Nov. 20 | Q | ... | | | 13.28 | | | 57.65 |
| 21 | Q | ... | | | 13.14 | | | 59.18 |
| Means... | | ... | 23 | 10 | 13.13 | 87 | 26 | 58.73 |
| 94 Aquarii. | | | | | | | | |
| Nov. 19 | Q | 6.5 | 23 | 12 | 3.67 | 104 | 11 | 14.87 |
| W.B. (2) XXIII. 278. | | | | | | | | |
| Nov. 6 | Q | 8.2 | 23 | 14 | 9.96 | 68 | 46 | 16.27 |
| W.B. (2) XXIII. 289. | | | | | | | | |
| Nov. 27 | Q | 8.0 | 23 | 14 | 41.14 | 57 | 42 | 14.88 |
| 64 Pegasi. | | | | | | | | |
| Sept. 19 | Q | ... |  |  | ..... | 58 | 55 | 17.32 |
| Oct. 22 | Q | ... |  |  | ..... |  |  | 16.84 |
| Mean... |  | ... |  |  | ..... | 58 | 55 | 17.08 |
| Reflexion. | | | | | | | | |
| Sept. 19 | Q | ... |  |  | ..... | 58 | 55 | 16.67 |
| Oct. 22 | Q | ... |  |  | ..... |  |  | 16.37 |
| Mean... |  | ... |  |  | ..... | 58 | 55 | 16.52 |
| W.B. (2) XXIII. 340. | | | | | | | | |
| Sept. 17 | Q | 7.8 | 23 | 17 | 15.07 | 69 | 22 | 39.50 |
| Oct. 16 | Q | 7.7 | | | 15.17 | | | 42.81 |
| Means... | | 7.7 | 23 | 17 | 15.12 | 69 | 22 | 41.16 |
| κ Piscium. | | | | | | | | |
| Nov. 17 | Q | ... | 23 | 20 | 3.79 | 89 | 28 | 40.03 |
| 21 | Q | ... | | | 3.70 | | | 40.89 |
| Means... | | ... | 23 | 20 | 3.75 | 89 | 28 | 40.46 |
| W.B. (2) XXIII. 437. | | | | | | | | |
| Sept. 24 | Q | 7.7 | 23 | 21 | 19.50 | 69 | 22 | 30.75 |
| W.B. (2) XXIII. 462. | | | | | | | | |
| Oct. 8 | Q | 7.0 | 23 | 22 | 25.11 | 67 | 41 | 12.53 |
| Σ 3019. (2nd star.) | | | | | | | | |
| Oct. 16 | Q | 8.0 | 23 | 23 | 51.02 | 85 | 29 | 20.84 |
| Nov. 6 | Q | 8.0 | | | 51.13 | | | 21.52 |
| Means... | | 8.0 | 22 | 23 | 51.08 | 85 | 29 | 21.18 |
| Radcliffe 6099. | | | | | | | | |
| Oct. 31 | Q | 7.0 | 23 | 24 | 13.07 | 4 | 19 | 16.23 |
| Radcliffe 6099 S.P. | | | | | | | | |
| Apr. 14 | Q | ... |  |  | ..... | -4 | 19 | 10.25 |
| W.B. (2) XXIII. 522. | | | | | | | | |
| Dec. 14 | Q | 7.5 | 23 | 24 | 59.88 | 66 | 37 | 37.52 |
| W.B. (2) XXIII. 535. | | | | | | | | |
| Sept. 19 | Q | 7.0 | 23 | 25 | 47.53 | 66 | 53 | 41.95 |
| Oct. 30 | Q | ... | | | 47.68 | | | 43.33 |
| Nov. 27 | Q | 7.3 | | | 47.66 | | | 41.28 |
| Means... | | 7.1 | 23 | 25 | 47.62 | 66 | 53 | 42.19 |

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| | | | h. m. s. | | | ° ' " | | |
| W.B. (2) XXIII. 562. | | | | | | | | |
| Sept. 17 | Q | 7.8 | 23 26 | 53.83 | | 68 24 | 38.46 | |
| W.B. (2) XXIII. 567. | | | | | | | | |
| Oct. 26 | Q | ... | 23 27 | 11.18 | | | | |
| Radcliffe 6117 S.P. | | | | | | | | |
| Apr. 18 | Q | ... | 23 27 | 16.57 | | -4 10 | 52.32 | |
| 73 Pegasi. | | | | | | | | |
| Sept. 24 | Q | 6.3 | 23 28 | 0.89 | | 57 14 | 39.02 | |
| 75 Pegasi. | | | | | | | | |
| Oct. 8 | Q | 6.2 | 23 31 | 10.98 | | 72 20 | 29.38 | |
| Nov. 21 | Q | 6.5 | | 11.12 | | | 30.18 | |
| Means... | | 6.3 | 23 31 | 11.05 | | 72 20 | 29.78 | |
| α Piscium. | | | | | | | | |
| Sept. 19 | Q | ... | 23 33 | 3.46 | | 85 5 | 59.06 | |
| Oct. 16 | Q | ... | | 3.53 | | | 58.24 | |
| 26 | Q | ... | | 3.52 | | | 57.50 | |
| Nov. 6 | Q | ... | | 3.56 | | | 60.08 | |
| 19 | Q | 5.0 | | 3.58 | | | 60.53 | |
| 30 | Q | ... | | 3.72 | | | 57.76 | |
| Dec. 7 | Q | ... | | 3.44 | | | 59.72 | |
| Means... | | 5.0 | 23 33 | 3.54 | | 85 5 | 58.98 | |
| γ Cephei. | | | | | | | | |
| Oct. 22 | Q | ... | ... | ... | | 13 6 | 58.61 | |
| Nov. 20 | Q | ... | ..... |  |  |  | 59.66 | |
| Mean... |  | ... | ..... |  |  | 13 6 | 59.14 | |
| Reflexion. | | | | | | | | |
| Oct. 22 | Q | ... | ..... |  |  | 13 6 | 56.54 | |
| Nov. 20 | Q | ... | ..... |  |  |  | 57.44 | |
| Mean |  | ... | ..... |  |  | 13 6 | 56.99 | |
| W.B. (2) XXIII. 748. | | | | | | | | |
| Sept. 17 | Q | 7.4 | 23 34 | 49.05 | | 66 31 | 5.01 | |
| Oct. 31 | Q | 7.3 | | 49.11 | | | 9.20 | |
| Means... | | 7.3 | 23 34 | 49.08 | | 66 31 | 7.11 | |
| λ Piscium. | | | | | | | | |
| Dec. 14 | Q | ... | 23 35 | 12.59 | | 88 57 | 27.06 | |
| W.B. (2) XXIII. 800. | | | | | | | | |
| Sept. 24 | Q | 8.0 | 23 36 | 56.53 | | 68 48 | 9.08 | |
| W.B. (2) XXIII. 816. | | | | | | | | |
| Oct. 8 | Q | 7.6 | 23 38 | 6.32 | | 56 1 | 7.25 | |
| W.B. (2) XXIII. 821. | | | | | | | | |
| Nov. 21 | Q | 7.0 | 23 38 | 17.92 | | 69 21 | 12.47 | |
| Radcliffe 6172. | | | | | | | | |
| Nov. 19 | Q | 7.7 | ..... |  |  | 5 16 | 31.05 | |
| Radcliffe 6172 S.P. | | | | | | | | |
| Apr. 21 | Q | ... | 23 38 | 27.53 | | -5 16 | 26.60 | |
| W.B. (2) XXIII. 840. | | | | | | | | |
| Oct. 16 | Q | 7.7 | 23 39 | 37.20 | | 67 17 | 39.27 | |
| 30 | Q | 7.8 | | 37.12 | | | 41.11 | |
| Means... | | 7.7 | 23 39 | 37.16 | | 67 17 | 40.19 | |
| B.A.C. 8272. | | | | | | | | |
| Sept. 19 | Q | 7.0 | 23 41 | 21.54 | | 82 29 | 52.68 | |

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | | | Mean N.P.D. 1866, Jan. 1. | | | Day, 1866. | Observer. | Mag. | Mean R.A. 1866 Jan. 1. | | | Mean N.P.D. 1866, Jan. 1. | | |
|----------------------|-----------|------|-------------------------------|----|-------|---------------------------------|----|-------|-----------------------------------|-----------|------|------------------------------|----|-------|---------------------------------|----|-------|
| | | | h. | m. | s. | ° | ' | " | | | | h. | m. | s. | ° | ' | " |
| ♂ Sculptoris. | | | | | | | | | ψ Pegasi. | | | | | | | | |
| Nov. 6 | Q | ... | 23 | 41 | 56.50 | 118 | 52 | 15.95 | Nov. 20 | Q | ... | ..... |  |  | 65 | 36 | 18.20 |
| 27 | Q | ... | | | 56.51 | | | 15.89 | | | | | | | | | |
| Dec. 7 | Q | ... | | | 56.48 | | | 14.37 | | | | | | | | | |
| Means... | ... | | 23 | 41 | 56.50 | 118 | 52 | 15.40 | Nov. 20 | Q | ... | ..... |  |  | 65 | 36 | 16.46 |
| B.A.C. 8276. | | | | | | | | | Piazzi xxiii. 240. (2nd star.) | | | | | | | | |
| Oct. 26 | Q | ... | 23 | 41 | 57.73 | 88 | 31 | 44.86 | Oct. 31 | Q | 8.0 | 23 | 51 | 13.98 | 66 | 23 | 54.21 |
| Rumker 11619. | | | | | | | | | W.B. (2) XXIII. 1062. | | | | | | | | |
| Oct. 31 | Q | 8.0 | 23 | 42 | 15.32 | 69 | 37 | 32.63 | Oct. 22 | Q | 8.0 | 23 | 51 | 37.70 | 66 | 20 | 47.96 |
| 21 Piscium. | | | | | | | | | 27 Piscium. | | | | | | | | |
| Nov. 17 | Q | ... | 23 | 42 | 35.80 | 89 | 40 | 2.00 | Nov. 17 | Q | ... | 23 | 51 | 48.81 | 94 | 17 | 58.84 |
| Dec. 14 | Q | 6.0 | | | 35.84 | | | 2.48 | | | | | | | | | |
| 15 | Q | ... | | | 35.81 | | | 5.34 | | | | | | | | | |
| Means... | 6.0 | | 23 | 42 | 35.82 | 89 | 40 | 3.27 | ω Piscium. | | | | | | | | |
| 79 Pegasi. | | | | | | | | | Oct. 26 | Q | ... | 23 | 52 | 25.97 | 83 | 52 | 44.28 |
| Nov. 30 | Q | 7.0 | 23 | 42 | 52.71 | 61 | 54 | 10.27 | 30 | Q | ... | | | 25.71 | | | 44.19 |
| W.B. (2) XXIII. 937. | | | | | | | | | Nov. 21 | Q | ... | | | 25.84 | | | 44.22 |
| Oct. 8 | Q | 8.0 | 23 | 44 | 40.71 | 63 | 24 | 30.63 | Dec. 14 | Q | ... | | | 25.84 | | | 43.15 |
| 22 | Q | 8.0 | | | 40.81 | | | 30.46 | Means... | ... | | 23 | 52 | 25.84 | 83 | 52 | 43.96 |
| Means... | 8.0 | | 23 | 44 | 40.76 | 63 | 24 | 30.55 | Groombridge 4193. | | | | | | | | |
| 22 Piscium. | | | | | | | | | Nov. 30 | Q | 6.9 | ..... |  |  | 4 | 2 | 24.46 |
| Sept. 24 | Q | 6.5 | 23 | 45 | 6.24 | 87 | 48 | 51.51 | W.B. (1) XXIII. 1085. | | | | | | | | |
| Dec. 12 | Q | ... | | | 6.31 | | | 52.12 | Dec. 15 | Q | ... | 23 | 53 | 31.83 | 88 | 4 | 15.72 |
| Means... | 6.5 | | 23 | 45 | 6.28 | 87 | 48 | 51.82 | B.A.C. 8337. | | | | | | | | |
| W.B. (2) XXIII. 993. | | | | | | | | | Oct. 8 | Q | 7.0 | 23 | 53 | 32.95 | 63 | 49 | 33.29 |
| Sept. 19 | Q | 7.8 | 23 | 48 | 1.62 | 68 | 16 | 24.21 | W.B. (2) XXIII. 1154-6. | | | | | | | | |
| | | | | | | | | | Sept. 24 | Q | 7.0 | 23 | 54 | 51.60 | 66 | 29 | 30.35 |

70 *Separate Results for Mean R.A.'s and Mean N.P.D.'s, 1866.*

| Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. | Day, 1866. | Observer. | Mag. | Mean R.A. 1866, Jan. 1. | Mean N.P.D. 1866, Jan. 1. |
|---------------|-----------|------|-------------------------------|---------------------------------|-----------------------|-----------|------|-------------------------------|---------------------------------|
| | | | h. m. s. | ° ' " | | | | h. m. s. | ° ' " |
| Σ 3054. | | | | | W.B. (2) XXIII. 1289. | | | | |
| Oct. 16 | Q | 8.3 | 23 56 12.27 | 82 28 24.80 | Oct. 22 | Q | 7.5 | 23 59 9.65 | 65 49 44.81 |
| Nov. 27 | Q | ... | 12.19 | 26.23 | Dec. 8 | Q | ... | 9.67 | 42.20 |
| | | | | | 12 | Q | ... | 9.55 | 44.49 |
| Means... | | 8.3 | 23 56 12.23 | 82 28 25.52 | Means... | | 7.5 | 23 59 9.62 | 65 49 43.83 |

*Constants for Stars not included in the B.A.C., observed in the Year 1866,
computed for the epoch 1870.0.*

| Star. | Logarithms of | | | | | | | |
|--|---------------|----------|----------|----------|-----------|-----------|-----------|-----------|
| | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | <i>a'</i> | <i>b'</i> | <i>c'</i> | <i>d'</i> |
| Lalande 47309 | +8.8826 | +6.6419 | +0.4879 | +8.5697 | -9.5755 | -9.6872 | -1.3022 | +7.7593 |
| W.B. (2) O. 44 | 8.8973 | 7.1208 | 0.4893 | 8.6264 | 9.5531 | 9.7290 | 1.3021 | 8.2234 |
| W.B. (2) O. 112 | 8.8561 | 7.2403 | 0.4891 | 8.4265 | 9.5952 | 9.5703 | 1.3021 | 8.3841 |
| W.B. (2) O. 328 | 8.8624 | 7.6293 | 0.4922 | 8.4715 | 9.5715 | 9.6077 | 1.3014 | 8.7661 |
| Lalande 387 | 8.8644 | 7.6627 | 0.4928 | 8.4841 | 9.5662 | 9.6188 | 1.3013 | 8.7974 |
| W.B. (2) O. 364 | 8.8622 | 7.6689 | 0.4926 | 8.4709 | 9.5689 | 9.6079 | 1.3012 | 8.8059 |
| Σ 28 | 8.8799 | 7.7518 | 0.4949 | 8.5623 | 9.5373 | 9.6812 | 1.3010 | 8.8707 |
| W.B. (2) O. 609 | 8.8487 | 7.8832 | 0.4947 | 8.3852 | 9.5687 | 9.5339 | 1.2997 | 9.0320 |
| W.B. (2) O. 639 | 8.8554 | 7.9090 | 0.4960 | 8.4377 | 9.5539 | 9.5795 | 1.2994 | 9.0508 |
| W.B. (2) O. 742 | 8.8483 | 7.9623 | 0.4962 | 8.3896 | 9.5587 | 9.5376 | 1.2985 | 9.1104 |
| W.B. (2) O. 774-5 | 8.8481 | 7.9795 | 0.4967 | 8.3900 | 9.5563 | 9.5380 | 1.2982 | 9.1275 |
| W.B. (2) O. 873 | 8.8469 | 8.0234 | 0.4975 | 8.3872 | 9.5508 | 9.5354 | 1.2973 | 9.1716 |
| W.B. (2) O. 1016 | 8.8469 | 8.0918 | 0.4997 | 8.3996 | 9.5359 | 9.5461 | 1.2956 | 9.2382 |
| W.B. (1) O. 741 | 8.8164 | 8.1022 | 0.4890 | 7.4841 | 9.6280 | 8.6607 | 1.2942 | 9.2778 |
| W.B. (2) O. 1218 | 8.8530 | 8.1831 | 0.5045 | 8.4597 | 9.4945 | 9.5972 | 1.2926 | 9.3204 |
| W.B. (1) O. 855 | 8.8136 | 8.1596 | 0.4881 | 7.1224 | 9.6329 | 8.2984 | 1.2918 | 9.3356 |
| Piazzi O. 253 | 8.8405 | 8.2168 | 0.5034 | 8.3859 | 9.5120 | 9.5334 | 1.2902 | 9.3644 |
| W.B. (2) I. 265 | 8.8326 | 8.3584 | 0.5106 | 8.4002 | 9.4558 | 9.5444 | 1.2790 | 9.5026 |
| W.B. (2) I. 408 | 8.8388 | 8.3996 | 0.5161 | 8.4610 | 9.3993 | 9.5952 | 1.2752 | 9.5338 |
| Piazzi i. 191 | 8.7834 | 8.4770 | 0.5020 | 8.0302 | 9.5427 | 9.1994 | 1.2548 | 9.6462 |
| Piazzi i. 227 | 8.7710 | 8.5030 | 0.4971 | 7.8079 | 9.5789 | 8.9837 | 1.2467 | 9.6765 |
| W.B. (2) II. 154 | 8.8016 | 8.5971 | 0.5350 | 8.4549 | 9.1731 | 9.5818 | 1.2307 | 9.7240 |
| * [R.A. 2 ^h 13 ^m 40 ^s N.P.D. 67° 12' | 8.7808 | 8.6002 | 0.5291 | 8.3691 | 9.2709 | 9.5098 | 1.2273 | 9.7409 |
| W.B. (2) II. 348 | 8.7891 | 8.6173 | 0.5361 | 8.4322 | 9.1592 | 9.5617 | 1.2207 | 9.7468 |
| Piazzi ii. 89 | 8.7959 | 8.6434 | 0.5444 | +8.4853 | 8.9867 | -9.6021 | 1.2148 | 9.7601 |
| Σ 280 | 8.7293 | 8.6051 | 0.4748 | -7.7639 | 9.6958 | +8.9374 | 1.2050 | 9.7786 |
| Piazzi ii. 135 | 8.7252 | 8.6144 | 0.5015 | +7.8192 | 9.5496 | -8.9919 | 1.2000 | 9.7872 |
| W.B. (2) II. 907 | 8.7381 | 8.6559 | 0.5294 | 8.2752 | 9.2734 | 9.4239 | 1.1889 | 9.8045 |
| W.B. (2) II. 976 | 8.7793 | 8.7077 | 0.5585 | 8.5071 | 8.3236 | 9.6102 | 1.1845 | 9.8108 |
| W.B. (2) II. 1004 | +8.7670 | +8.6993 | +0.5530 | +8.4658 | -8.7067 | -9.5795 | -1.1829 | +9.8130 |

Constants for Stars not included in the B.A.C., observed in the Year 1866,
computed for the epoch 1870.0 (*continued*).

| Star. | Logarithms of | | | | | | | |
|---|---------------|----------|----------|----------|-----------|-----------|-----------|-----------|
| | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | <i>a'</i> | <i>b'</i> | <i>c'</i> | <i>d'</i> |
| W.B. (2) II. 1094 | +8.7450 | +8.6930 | +0.5451 | +8.3902 | -8.9820 | -9.5191 | -1.1761 | +9.8219 |
| W.B. (2) II. 1137 | 8.7427 | 8.6970 | 0.5458 | 8.3900 | 8.9632 | 9.5184 | 1.1733 | 9.8254 |
| W.B. (2) II. 1184 | 8.7582 | 8.7208 | 0.5580 | 8.4701 | 8.3750 | 9.5792 | 1.1696 | 9.8300 |
| W.B. (2) II. 1202 | 8.7277 | 8.6937 | 0.5401 | 8.3305 | 9.0989 | 9.4686 | 1.1680 | 9.8318 |
| W.B. (2) II. 1426 | 8.7094 | 8.7105 | 0.5411 | 8.3046 | -9.0796 | 9.4441 | 1.1511 | 9.8501 |
| Σ 369 | 8.7721 | 8.8050 | 0.5904 | 8.5801 | +9.1438 | 9.6405 | 1.1346 | 9.8653 |
| W.B. (2) III. 279 | 8.7112 | 8.7656 | 0.5649 | 8.4224 | +8.1338 | 9.5318 | 1.1228 | 9.8750 |
| Σ 394 | 8.6578 | 8.7361 | 0.5372 | 8.1922 | -9.1615 | 9.3413 | 1.1090 | 9.8851 |
| Σ 427 | 8.6571 | 8.7828 | 0.5621 | 8.3337 | 7.2346 | 9.4543 | 1.0799 | 9.9034 |
| W.B. (2) II. 748 | 8.6275 | 8.7587 | 0.5417 | +8.1792 | 9.0756 | -9.3258 | 1.0763 | 9.9053 |
| Σ 436 | 8.6078 | 8.7414 | 0.4506 | -7.9610 | 9.7813 | +9.1257 | 1.0747 | 9.9062 |
| W.B. (2) III. 1057-8..... | 8.5851 | 8.7791 | 0.5443 | +8.1385 | 9.0169 | -9.2848 | 1.0337 | 9.9255 |
| W.B. (2) III. 1191..... | 8.5637 | 8.7864 | 0.5447 | +8.1124 | 9.0099 | -9.2594 | 1.0129 | 9.9335 |
| Lalande 8033 | 8.5216 | 8.8064 | 0.4116 | -8.1039 | 9.8693 | +9.2457 | 0.9656 | 9.9482 |
| W.B. (1) IV. 417 | 8.4524 | 8.7884 | 0.5159 | +7.6827 | 9.4366 | -8.8524 | 0.9243 | 9.9581 |
| Σ 576 | 8.4094 | 8.8028 | 0.4437 | -7.7707 | -9.8030 | +8.9350 | 0.8759 | 9.9671 |
| * { R.A. 4 ^h 43 ^m 0 ^s { N.P.D. 53° 6' | 8.4391 | 8.8960 | 0.6041 | +8.2176 | +9.3422 | -9.2966 | 0.8203 | 9.9750 |
| * { R.A. 4 ^h 51 ^m 21 ^s { N.P.D. 88° 32' | 8.2940 | 8.8043 | 0.4919 | 6.7022 | -9.6120 | 7.8781 | 0.7721 | 9.9802 |
| Σ 627 | 8.2799 | 8.8063 | 0.4980 | 7.0552 | 9.5752 | 8.2303 | 0.7574 | 9.9816 |
| Piazzi iv. 278-9 | 8.2692 | 8.8065 | 0.4918 | 6.6623 | 9.6129 | -7.8383 | 0.7473 | 9.9824 |
| W.B. (2) V. 270-1 | 8.1847 | 8.8456 | 0.5550 | +7.7517 | 8.6325 | -8.8960 | 0.6312 | 9.9899 |
| Σ 688 | 8.1385 | 8.8227 | 0.4501 | -7.4146 | 9.7861 | +8.5828 | 0.6089 | 9.9909 |
| Σ 697 | 8.1210 | 8.8329 | 0.5372 | +7.5591 | 9.1707 | -8.7182 | 0.5823 | 9.9920 |
| Piazzi v. 109 | 8.0412 | 8.8228 | 0.4585 | -7.2100 | 9.7594 | +8.3813 | 0.5147 | 9.9941 |
| Piazzi v. 317 | 6.8383 | 8.8399 | 0.5367 | +6.2638 | 9.1813 | -7.4239 | 9.3006 | 0.0000 |
| Σ 838 | +6.6588 | 8.8240 | 0.4901 | +4.8385 | 9.6219 | -6.0276 | -9.1370 | 0.0000 |
| Σ 921 | -7.8505 | 8.8301 | 0.5235 | -7.1439 | 9.3580 | +8.3114 | +0.3202 | 9.9976 |
| O. A. (S. Z.) 5589 | 8.0831 | 8.8519 | 0.4024 | +7.6655 | 9.8906 | -8.8068 | 0.5271 | 9.9938 |
| Piazzi vi. 332 | 8.2590 | 8.8250 | 0.5358 | -7.6922 | 9.1930 | +8.8517 | 0.7207 | 9.9845 |
| W.B. (2) VI. 1846 | -8.2610 | +8.8263 | +0.5377 | -7.7101 | -9.1617 | +8.8683 | +0.7214 | +9.9845 |

Constants for Stars not included in the B.A.C., observed in the Year 1866,
computed for the epoch 18700 (*continued*).

| Star. | Logarithms of | | | | | | | |
|---|---------------|----------|----------|----------|-----------|-----------|-----------|-----------|
| | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | <i>a'</i> | <i>b'</i> | <i>c'</i> | <i>d'</i> |
| Σ 1035 | -8.3001 | +8.8410 | +0.5567 | -7.8829 | -8.5201 | +9.0246 | +0.7440 | +9.9827 |
| W.B. (2) VII. 397 | 8.3633 | 8.8363 | 0.5570 | 7.9534 | 8.4903 | 9.0938 | 0.8059 | 9.9767 |
| Piazzi vii. 182 | 8.4753 | 8.8256 | 0.5598 | 8.0939 | 8.1845 | 9.2288 | 0.9124 | 9.9606 |
| Lalande 15007 | 8.4642 | 8.8126 | 0.5475 | 8.0088 | 8.9375 | 9.1565 | 0.9140 | 9.9602 |
| *[R.A. 7 ^h 48 ^m 30 ^s | 8.5132 | 8.8037 | 0.5481 | 8.0715 | 8.9168 | 9.2172 | 0.9611 | 9.9494 |
| [N.P.D. 66° 48' | | | | | | | | |
| W.B. (2) VII. 1371 | 8.5171 | 8.8032 | 0.5483 | 8.0776 | -8.9098 | 9.2229 | 0.9646 | 9.9483 |
| W.B. (2) VII. 1408 | 8.5586 | 8.8367 | 0.5770 | 8.2679 | +8.9611 | 9.3780 | 0.9709 | 9.9468 |
| W.B. (2) VII. 1465 | 8.5418 | 8.8083 | 0.5564 | 8.1556 | -8.5343 | 9.2915 | 0.9799 | 9.9442 |
| Piazzi vii. 280 | 8.5317 | 8.7946 | 0.5441 | 8.0678 | 9.0243 | 9.2166 | 0.9826 | 9.9434 |
| W.B. (2) VII. 1527 | 8.5389 | 8.7946 | 0.5457 | -8.0873 | 8.9859 | +9.2344 | 0.9882 | 9.9417 |
| Σ 1183 | 8.5288 | 8.7664 | 0.4611 | +7.7167 | 9.7499 | -8.8875 | 1.0018 | 9.9373 |
| W.B. (2) VII. 1646 | 8.5706 | 8.8070 | 0.5603 | -8.2114 | 8.0761 | +9.3414 | 1.0027 | 9.9370 |
| Σ 1198 | 8.5377 | 8.7565 | 0.4919 | 6.9970 | -9.6118 | 8.1729 | 1.0158 | 9.9324 |
| W.B. (2) VIII. 81 | 8.5655 | 8.8095 | 0.5661 | 8.2705 | +8.3019 | 9.3919 | 1.0201 | 9.9308 |
| W.B. (2) VIII. 132 | 8.6400 | 8.8441 | 0.5903 | 8.4087 | +9.1660 | 9.4930 | 1.0265 | 9.9284 |
| W.B. (2) VIII. 147 | 8.5742 | 8.7763 | 0.5395 | 8.0887 | -9.1247 | 9.2402 | 1.0279 | 9.9278 |
| *[R.A. 8 ^h 10 ^m 15 ^s | 8.5825 | 8.7773 | 0.5423 | 8.1210 | 9.0640 | 9.2695 | 1.0331 | 9.9257 |
| [N.P.D. 69° 47' | | | | | | | | |
| W.B. (2) VIII. 218 | 8.5995 | 8.7895 | 0.5545 | 8.2186 | 8.6541 | 9.3535 | 1.0365 | 9.9243 |
| Lalande 16350-2-3 | 8.5954 | 8.7724 | 0.5422 | 8.1374 | 9.0672 | 9.2854 | 1.0456 | 9.9204 |
| W.B. (2) VIII. 364 | 8.6154 | 8.7814 | 0.5528 | 8.2309 | 8.7366 | 9.3665 | 1.0531 | 9.9170 |
| Lalande 16452 | 8.6037 | 8.7694 | 0.5422 | 8.1494 | 9.0649 | 9.2969 | 1.0534 | 9.9169 |
| W.B. (2) VIII. 523 | 8.6173 | 8.7579 | 0.5382 | 8.1387 | 9.1464 | 9.2894 | 1.0702 | 9.9086 |
| W.B. (2) VIII. 574 | 8.6130 | 8.7469 | 0.5282 | 8.0457 | 9.2997 | 9.2053 | 1.0747 | 9.9062 |
| W.B. (2) VIII. 1160 | 8.6986 | 8.7451 | 0.5534 | 8.3542 | 8.7018 | 9.4805 | 1.1271 | 9.8715 |
| W.B. (2) VIII. 1237 | 8.6813 | 8.7160 | 0.5342 | 8.2069 | -9.2104 | 9.3571 | 1.1336 | 9.8662 |
| W.B. (2) IX. 71-2 | 8.7735 | 8.7531 | 0.5721 | -8.5391 | +8.6970 | +9.6250 | 1.1617 | 9.8390 |
| W.B. (1) IX. 75 | 8.6862 | 8.6656 | 0.4723 | +7.7367 | -9.7065 | -8.9101 | 1.1617 | 9.8389 |
| W.B. (2) IX. 287 | 8.7478 | 8.6903 | 0.5449 | -8.3945 | 8.9860 | +9.5231 | 1.1785 | 9.8189 |
| Piazzi ix. 64-5 | 8.7048 | 8.6421 | 0.5000 | 7.7192 | 9.5871 | 8.7293 | 1.1808 | 9.8159 |
| W.B. (2) X. 90-1 | -8.8393 | +8.5750 | +0.5405 | -8.5367 | -9.0588 | +9.6681 | +1.2459 | +9.6794 |

Constants for Stars not included in the B.A.C., observed in the Year 1866,
computed for the epoch 1870.0 (*continued*).

| Star. | Logarithms of | | | | | | | |
|--|---------------|----------|----------|----------|-----------|-----------|-----------|-----------|
| | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | <i>a'</i> | <i>b'</i> | <i>c'</i> | <i>d'</i> |
| W.B. (2) X. 220 | -8.8165 | +8.5239 | +0.5256 | -8.4428 | -9.3036 | +9.5761 | +1.2520 | +9.6572 |
| W.B. (2) X. 995 | 8.8359 | 8.3324 | 0.5093 | 8.4063 | 9.4646 | 9.5501 | 1.2818 | 9.4761 |
| Lalande 21941 | 8.8474 | 8.0128 | 0.4973 | 8.3897 | 9.5517 | 9.5377 | 1.2976 | 9.1607 |
| W.B. (2) XI. 746 | 8.8508 | 7.8213 | 0.4939 | 8.3974 | 9.5720 | 9.5448 | 1.3003 | 8.9696 |
| Σ 1575 | 8.8291 | 7.6373 | 0.4893 | 8.0482 | 9.6203 | 9.2190 | 1.3013 | 8.8073 |
| W.B. (2) XI. 1159 | 8.8630 | +6.2928 | 0.4876 | -8.4711 | 9.5970 | +9.6082 | 1.3022 | +7.4299 |
| Piazzi xii. 32-3 | 8.8241 | -7.5243 | 0.4867 | +7.5754 | 9.6338 | -8.7508 | 1.3016 | -8.6997 |
| * { R.A. 12 ^h 11 ^m 50 ^s N.P.D. 90° 2' | 8.8233 | 7.5366 | 0.4873 | +5.5881 | 9.6374 | -6.7642 | 1.3016 | 8.7127 |
| W.B. (2) XII. 409 | 8.9247 | 7.8663 | 0.4744 | -8.7125 | 9.5978 | +9.7861 | 1.3005 | 8.9399 |
| W.B. (2) XII. 628 | 8.8498 | 7.9738 | 0.4776 | 8.4031 | 9.6555 | 9.5495 | 1.2984 | 9.1202 |
| Lalande 23728 | 8.8611 | 8.0689 | 0.4731 | -8.4873 | 9.6633 | +9.6206 | 1.2966 | 9.2022 |
| Piazzi xii. 196 | 8.8218 | 8.1167 | 0.4935 | -8.0454 | 9.5970 | -9.2153 | 1.2939 | 9.2866 |
| W.B. (2) XII. 1019 | 8.9129 | 8.2738 | 0.4536 | -8.6967 | 9.6817 | +9.7726 | 1.2910 | 9.3498 |
| W.B. (2) XII. 1063 | 8.8396 | 8.2210 | 0.4706 | 8.3806 | 9.6885 | 9.5287 | 1.2900 | 9.3691 |
| W.B. (2) XII. 1086 | 8.8439 | 8.2345 | 0.4686 | 8.4169 | 9.6917 | 9.5602 | 1.2894 | 9.3778 |
| W.B. (2) XII. 1124 | 8.8447 | 8.2555 | 0.4672 | 8.4293 | 9.6958 | 9.5707 | 1.2882 | 9.3969 |
| W.B. (2) XIII. 45 | 8.8391 | 8.3004 | 0.4655 | 8.4114 | 9.7044 | 9.5549 | 1.2847 | 9.4439 |
| W.B. (2) XIII. 423 | 8.8233 | 8.3998 | 0.4617 | 8.3666 | 9.7241 | 9.5144 | 1.2733 | 9.5476 |
| W.B. (2) XIII. 461 | 8.8531 | 8.4385 | 0.4475 | 8.5418 | 9.7436 | 9.6587 | 1.2722 | 9.5554 |
| Lalande 25221 | 8.8298 | 8.4616 | 0.4512 | 8.4544 | 9.7477 | 9.5880 | 1.2656 | 9.5952 |
| Lalande 25292 | 8.8216 | 8.4699 | 0.4529 | 8.4185 | 9.7476 | 9.5577 | 1.2630 | 9.6091 |
| W.B. (2) XIII. 954 | 8.8135 | 8.5087 | 0.4493 | -8.4128 | 9.7594 | +9.5515 | 1.2545 | 9.6475 |
| Lacaille 5763 | 8.8228 | 8.5352 | 0.5293 | +8.4799 | 9.2517 | -9.6059 | 1.2510 | 9.6612 |
| W.B. (2) XIII. 1252 | 8.8006 | 8.5503 | 0.4458 | -8.3947 | 9.7718 | +9.5334 | 1.2426 | 9.6900 |
| W.B. (2) XIII. 1303 | 8.7965 | 8.5588 | 0.4456 | 8.3845 | 9.7738 | 9.5253 | 1.2395 | 9.6996 |
| W.B. (2) XIII. 1350 | 8.7894 | 8.5589 | 0.4487 | 8.3447 | 9.7687 | 9.4908 | 1.2377 | 9.7050 |
| Lalande 16089 | 8.7800 | 8.5752 | 0.4489 | 8.3179 | 9.7708 | 9.4665 | 1.2308 | 9.7238 |
| * { R.A. 14 ^h 13 ^m 44 ^s N.P.D. 65° 54' | 8.7850 | 8.6046 | 0.4379 | 8.3960 | 9.7931 | 9.5324 | 1.2236 | 9.7411 |
| Piazzi xiv. 60 | 8.7717 | 8.5965 | 0.4465 | -8.3127 | 9.7781 | +9.4608 | 1.2221 | 9.7446 |
| Piazzi xiv. 62 | -8.7462 | -8.5742 | +0.5004 | +7.8423 | -9.5573 | -9.0149 | +1.2211 | -9.7469 |

Constants of Stars not included in the B.A.C., observed in the Year 1866,
computed for the epoch 1870.0 (*continued*).

| Star. | Logarithms of | | | | | | | |
|---|---------------|----------|----------|----------|-----------|-----------|-----------|-----------|
| | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | <i>a'</i> | <i>b'</i> | <i>c'</i> | <i>d'</i> |
| *{R.A. $14^h 25^m 45^s$ {N.P.D. $61^\circ 36'$ | -8.7851 | -8.6534 | +0.4219 | -8.4624 | -9.8223 | +9.5828 | +1.2077 | -9.7738 |
| Lalande 26645 | 8.7617 | 8.6476 | 0.4331 | 8.3679 | 9.8083 | 9.5053 | 1.2013 | 9.7850 |
| Lalande 26680-1 | 8.7494 | 8.6402 | 0.4417 | 8.2920 | 9.7929 | 9.4399 | 1.1995 | 9.7881 |
| W.B. (2) XIV. 664 | 8.7479 | 8.6426 | 0.4408 | 8.2906 | 9.7937 | 9.4385 | 1.1980 | 9.7905 |
| W.B. (2) XIV. 693 | 8.7528 | 8.6519 | 0.4349 | 8.3399 | 9.8066 | 9.4808 | 1.1959 | 9.7938 |
| Piazzi xiv. 160 | 8.7463 | 8.6546 | 0.4373 | 8.3139 | 9.8032 | 9.4581 | 1.1927 | 9.7988 |
| W.B. (2) XIV. 798 | 8.7381 | 8.6539 | 0.4411 | 8.2725 | 9.7907 | 9.4001 | 1.1893 | 9.8039 |
| W.B. (2) XIV. 1044 | 8.7327 | 8.6914 | 0.4262 | 8.3440 | 9.8266 | 9.4805 | 1.1713 | 9.8279 |
| W.B. (2) XIV. 1140 | 8.7278 | 8.7015 | 0.4233 | 8.3485 | 9.8328 | 9.4830 | 1.1644 | 9.8359 |
| W.B. (2) XIV. 1166 | 8.7485 | 8.7260 | 0.4033 | 8.4525 | 9.8588 | 9.5644 | 1.1627 | 9.8379 |
| Piazzi xiv. 247 | 8.7175 | 8.6975 | 0.4293 | 8.3012 | 9.8226 | 9.4427 | 1.1609 | 9.8390 |
| Σ 1904 | 8.6802 | 8.6713 | 0.4732 | 7.6994 | 9.7030 | 8.8731 | 1.1560 | 9.8450 |
| W.B. (2) XIV. 1301 | 8.7219 | 8.7246 | 0.4131 | 8.3779 | 9.8501 | 9.5041 | 1.1503 | 9.8509 |
| W.B. (2) XV. 13 | 8.7001 | 8.7096 | 0.4302 | 8.2655 | 9.8237 | 9.4100 | 1.1468 | 9.8542 |
| W.B. (2) XV. 71 | 8.7102 | 8.7284 | 0.4153 | 8.3510 | 9.8487 | 9.4810 | 1.1424 | 9.8584 |
| W.B. (2) XV. 474 | 8.6622 | 8.7480 | 0.4205 | 8.2537 | 9.8456 | +9.3930 | 1.1045 | 9.8882 |
| W.B. (2) XV. 491 | 8.6607 | 8.7486 | 0.4206 | -8.2507 | 9.8458 | +9.3912 | 1.1033 | 9.8890 |
| Σ 1962 | 8.6089 | 8.7304 | 0.5089 | +7.7718 | 9.4958 | -8.9432 | 1.0825 | 9.9019 |
| (T) Coronæ | 8.5895 | 8.8021 | 0.3993 | -8.2359 | 9.8846 | +9.3646 | 1.0203 | 9.9308 |
| W.B. (2) XVI. 1415 | 8.3538 | 8.8302 | 0.4131 | 7.9042 | 9.8707 | 9.0510 | 0.8028 | 9.9771 |
| Lalande 30768 | 8.3290 | 8.8191 | 0.4330 | 7.7650 | 9.8306 | 8.9242 | 0.7905 | 9.9784 |
| W.B. (2) XVII. 136 | 8.2151 | 8.8398 | 0.4133 | 7.7550 | 9.8717 | 8.9033 | 0.6656 | 9.9881 |
| *{R.A. $17^h 10^m 17^s$ {N.P.D. $66^\circ 4'$ | 8.1957 | 8.8525 | 0.3967 | -7.8030 | -9.8987 | +8.9402 | 0.6351 | 9.9897 |
| O.A. (S.Z.) 16772-3 ... | 8.1236 | 8.8640 | 0.5704 | +7.7688 | +8.6565 | -8.8977 | 0.5547 | 9.9929 |
| Piazzi xvii. 200 | 7.8889 | 8.8626 | 0.3915 | -7.5080 | -9.9076 | +8.6428 | 0.3259 | 9.9976 |
| Lalande 32621 | 7.6936 | 8.8526 | 0.4082 | 7.2473 | 9.8820 | 8.3936 | 0.1421 | 9.9990 |
| Lalande 32626 | 7.6866 | 8.8525 | 0.4084 | 7.2393 | 9.8816 | 8.3858 | 0.1353 | 9.9990 |
| W.B. (2) XVII. 1433 ... | 7.6637 | 8.8569 | 0.4018 | 7.2438 | 9.8925 | 8.3859 | 0.1080 | 9.9991 |
| W.B. (2) XVII. 1484 ... | 7.6169 | 8.8660 | 0.3888 | 7.2431 | 9.9113 | 8.3764 | 0.0524 | 9.9993 |
| W.B. (2) XVII. 1649 ... | -7.3847 | -8.8517 | +0.4108 | -6.9263 | -9.8777 | +8.0744 | +9.8349 | -9.9998 |

Constants of Stars not included in the B.A.C., observed in the Year 1866,
computed for the epoch 1870.0 (*continued*).

| Star. | Logarithms of | | | | | | | |
|--|---------------|----------|----------|----------|-----------|-----------|-----------|-----------|
| | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | <i>a'</i> | <i>b'</i> | <i>c'</i> | <i>d'</i> |
| W.B. (2) XVIII. 325 ... | +7.5919 | -8.8560 | +0.4036 | +7.1646 | -9.8897 | -8.3080 | -0.0375 | -9.9994 |
| W.B. (2) XVIII. 446 ... | 7.7108 | 8.8532 | 0.4072 | 7.2691 | 9.8838 | 8.4148 | 0.1587 | 9.9989 |
| W.B. (2) XVIII. 475 ... | 7.7330 | 8.8522 | 0.4086 | 7.2854 | 9.8814 | 8.4319 | 0.1817 | 9.9988 |
| Lalande 34322 | 7.9134 | 8.8567 | 0.3997 | 7.5032 | 9.8955 | -8.6437 | 0.3560 | 9.9972 |
| Piazzi xviii. 140 | 8.0015 | 8.8335 | 0.5335 | 7.4035 | 9.2310 | +8.5653 | 0.4655 | 9.9953 |
| W.B. (2) XVIII. 1099 ... | 8.0611 | 8.8467 | 0.4110 | +7.6064 | 9.8766 | -8.7540 | 0.5108 | 9.9943 |
| Σ 2391 | 8.0840 | 8.8192 | 0.5069 | -7.1139 | 9.5131 | +8.2875 | 0.5597 | 9.9928 |
| Rümker 6744 | 8.1303 | 8.8541 | 0.3976 | +7.7318 | 9.8978 | -8.8701 | 0.5708 | 9.9924 |
| W.B. (2) XVIII. 1302 ... | 8.1284 | 8.8460 | 0.4093 | 7.6830 | 9.8792 | 8.8292 | 0.5767 | 9.9922 |
| Σ 2426 | 8.2025 | 8.8226 | 0.4437 | 7.5452 | 9.8044 | 8.7105 | 0.6700 | 9.9879 |
| W.B. (2) XIX. 131 | 8.3059 | 8.8358 | 0.4111 | 7.8612 | 9.8747 | 9.0073 | 0.7541 | 9.9819 |
| W.B. (2) XIX. 283 | 8.3309 | 8.8304 | 0.4158 | 7.8667 | 9.8662 | 9.0155 | 0.7819 | 9.9793 |
| Σ 2504 | 8.3566 | 8.8241 | 0.4213 | 7.8670 | 9.8556 | 9.0190 | 0.8108 | 9.9762 |
| W.B. (2) XIX. 505 | 8.3741 | 8.8264 | 0.4156 | +7.9150 | -9.8660 | -9.0632 | 0.8244 | 9.9745 |
| * [R.A. 19 ^h 39 ^m 38 ^s N.P.D. 118° 51' | 8.5059 | 8.8391 | 0.5728 | -8.1894 | +8.7603 | +9.3080 | 0.9266 | 9.9576 |
| Piazzi xix. 320 | 8.5067 | 8.8011 | 0.4211 | +8.0404 | -9.8528 | -9.1895 | 0.9580 | 9.9502 |
| Rümker 7853 | 8.5218 | 8.7993 | 0.4193 | 8.0688 | 9.8559 | 9.2161 | 0.9713 | 9.9466 |
| Lalande 38423 | 8.5562 | 8.7975 | 0.4121 | 8.1448 | 9.8671 | 9.2855 | 0.9991 | 9.9382 |
| Σ 2628 | 8.5334 | 8.7651 | 0.4606 | +7.7285 | 9.7510 | -8.8992 | 1.0063 | 9.9358 |
| Σ 2654 | 8.5502 | 8.7529 | 0.4980 | -7.3828 | 9.5743 | +8.5579 | 1.0275 | 9.9280 |
| W.B. (2) XX. 517 | 8.6011 | 8.7762 | 0.4191 | +8.1721 | 9.8527 | -9.3158 | 1.0469 | 9.9199 |
| Lalande 39329 | 8.6120 | 8.7672 | 0.4234 | 8.1660 | 9.8442 | 9.3123 | 1.0605 | 9.9135 |
| W.B. (1) XX. 827 | 8.6316 | 8.7347 | 0.4444 | 8.0553 | 9.7970 | 9.2156 | 1.0941 | 9.8950 |
| W.B. (2) XX. 1155 | 8.6475 | 8.7448 | 0.4285 | 8.1901 | 9.8320 | 9.3381 | 1.0976 | 9.8927 |
| W.B. (2) XX. 1571 ... | 8.6838 | 8.7223 | 0.4294 | 8.2424 | 9.8271 | 9.3880 | 1.1316 | 9.8679 |
| W.B. (2) XX. 1588 ... | 8.6851 | 8.7215 | 0.4294 | 8.2446 | 9.8269 | 9.3901 | 1.1327 | 9.8669 |
| W.B. (2) XX. 1611 ... | 8.6927 | 8.7259 | 0.4234 | 8.2875 | 9.8373 | 9.4271 | 1.1344 | 9.8655 |
| W.B. (2) XX. 1721 ... | 8.6943 | 8.7096 | 0.4328 | 8.2406 | 9.8191 | 9.3880 | 1.1439 | 9.8570 |
| W.B. (2) XX. 1739 ... | 8.6973 | 8.7100 | 0.4314 | 8.2549 | 9.8219 | 9.4007 | 1.1453 | 9.8557 |
| W.B. (2) XX. 1804 ... | +8.6990 | -8.7038 | +0.4343 | +8.2406 | -9.8158 | -9.3887 | -1.1493 | -9.8519 |

Constants for Stars not included in the B.A.C., observed in the Year 1866,
computed for the epoch 1870.0 (*continued*).

| Star. | Logarithms of | | | | | | | |
|--|---------------|----------|----------|----------|-----------|-----------|-----------|-----------|
| | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | <i>a'</i> | <i>b'</i> | <i>c'</i> | <i>d'</i> |
| W.B. (2) XXI. 39..... | +8.7145 | -8.7002 | +0.4294 | +8.2955 | -9.8236 | -9.4375 | -1.1587 | -9.8423 |
| W.B. (2) XXI. 248 | 8.7222 | 8.6780 | 0.4378 | 8.2621 | 9.8057 | 9.4104 | 1.1727 | 9.8263 |
| Lalande 41648 | 8.7450 | 8.6743 | 0.4291 | 8.3534 | 9.8192 | 9.4904 | 1.1841 | 9.8113 |
| W.B. (2) XXI. 1265..... | 8.7807 | 8.5747 | 0.4487 | 8.3209 | 9.7710 | 9.4692 | 1.2311 | 9.7229 |
| *{R.A. 21 ^h 53 ^m 35 ^s | 8.9672 | 8.7561 | 0.3359 | 8.8648 | 9.8325 | 9.8281 | 1.2325 | 9.7194 |
| {N.P.D. 37° 47'..... | | | | | | | | |
| W.B. (2) XXII. 279..... | 8.8176 | 8.5215 | 0.4453 | +8.4454 | 9.7667 | -9.5784 | 1.2527 | 9.6544 |
| Σ 2913 | 8.7895 | 8.4396 | 0.4990 | -7.9733 | 9.5641 | +9.1443 | 1.2627 | 9.6105 |
| *{R.A. 22 ^h 26 ^m 17 ^s | 8.8145 | 8.4513 | 0.4586 | +8.3531 | 9.7364 | -9.5036 | 1.2648 | 9.5995 |
| {N.P.D. 69° 40'..... | | | | | | | | |
| W.B. (2) XXII. 722..... | 8.8198 | 8.4250 | 0.4600 | 8.3651 | 9.7304 | 9.5127 | 1.2695 | 9.5726 |
| W.B. (2) XXII. 759..... | 8.8258 | 8.4229 | 0.4579 | 8.4031 | 9.7329 | 9.5458 | 1.2706 | 9.5655 |
| W.B. (2) XXII. 876..... | 8.8232 | 8.3961 | 0.4621 | +8.3624 | 9.7229 | -9.5108 | 1.2737 | 9.5445 |
| Σ 2938 | 8.7965 | 8.3671 | 0.4911 | -7.5610 | 9.6159 | +8.7364 | 1.2740 | 9.5425 |
| W.B. (2) XXII. 1086 ... | 8.8557 | 8.3699 | 0.4550 | +8.5263 | 9.7233 | -9.6486 | 1.2802 | 9.4922 |
| W.B. (2) XXII. 1138 ... | 8.8370 | 8.3353 | 0.4635 | 8.4156 | 9.7121 | 9.5589 | 1.2816 | 9.4777 |
| W.B. (2) XXII. 1151 ... | 8.8430 | 8.3367 | 0.4615 | 8.4520 | 9.7138 | 9.5889 | 1.2821 | 9.4736 |
| *{R.A. 22 ^h 51 ^m 45 ^s | 8.8336 | 8.3207 | 0.4657 | 8.3840 | 9.7074 | 9.5308 | 1.2826 | 9.4675 |
| {N.P.D. 69° 12'..... | | | | | | | | |
| Rümker 10773 | 8.8394 | 8.3196 | 0.4640 | 8.4225 | 9.7089 | 9.5642 | 1.2832 | 9.4613 |
| W.B. (2) XXII. 1265 ... | 8.8416 | 8.2991 | 0.4649 | 8.4268 | 9.7046 | 9.5681 | 1.2850 | 9.4403 |
| W.B. (2) XXII. 1279 ... | 8.8348 | 8.2872 | 0.4679 | 8.3733 | 9.7002 | 9.5218 | 1.2854 | 9.4356 |
| W.B. (2) XXII. 1342 ... | 8.8712 | 8.3029 | 0.4577 | 8.5703 | 9.7043 | 9.6839 | 1.2869 | 9.4164 |
| W.B. (2) XXII. 1349 ... | 8.8369 | 8.2665 | 0.4686 | 8.3792 | 9.6965 | 9.5271 | 1.2870 | 9.4144 |
| W.B. (2) XXII. 1367 ... | 8.8711 | 8.2971 | 0.4583 | 8.5690 | 9.7029 | 9.6829 | 1.2873 | 9.4111 |
| W.B. (2) XXII. 1378 ... | 8.8376 | 8.2576 | 0.4689 | 8.3806 | 9.6950 | 9.5284 | 1.2877 | 9.4055 |
| W.B. (2) XXIII. 61..... | 8.8708 | 8.2604 | 0.4612 | 8.5609 | 9.6946 | -9.6774 | 1.2895 | 9.3769 |
| Σ 2988 | 8.8220 | 8.2090 | 0.4972 | 8.1620 | 9.5700 | +9.3273 | 1.2897 | 9.3745 |
| W.B. (2) XXIII. 169 ... | 8.8528 | 8.2026 | 0.4685 | 8.4632 | 9.6859 | -9.5998 | 1.2916 | 9.3392 |
| W.B. (2) XXIII. 278 ... | 8.8458 | 8.1507 | 0.4725 | 8.4051 | 9.6777 | 9.5506 | 1.2935 | 9.2962 |
| W.B. (2) XXIII. 289 ... | 8.8885 | 8.1885 | 0.4632 | 8.6166 | 9.6733 | 9.7196 | 1.2937 | 9.2915 |
| W.B. (2) XXIII. 340 ... | 8.8452 | 8.1189 | 0.4739 | 8.3922 | 9.6731 | 9.5395 | 1.2947 | 9.2662 |
| W.B. (2) XXIII. 437 ... | +8.8466 | -8.0756 | +0.4752 | +8.3940 | -9.6674 | -9.5412 | -1.2960 | -9.2229 |

Constants for Stars not included in the B.A.C., observed in the Year 1866,
computed for the epoch 1870.0 (*continued*).

| Star. | Logarithms of | | | | | | | |
|--------------------------|---------------|----------|----------|----------|-----------|-----------|-----------|-----------|
| | <i>a</i> | <i>b</i> | <i>c</i> | <i>d</i> | <i>a'</i> | <i>b'</i> | <i>c'</i> | <i>d'</i> |
| W.B. (2) XXIII. 462 ... | +8.8519 | -8.0682 | +0.4745 | +8.4318 | -9.6656 | -9.5740 | -1.2964 | -9.2104 |
| Σ 3019 | 8.8200 | 8.0150 | 0.4850 | 7.7178 | 9.6481 | 8.8926 | 1.2969 | 9.1897 |
| W.B. (2) XXIII. 522 ... | 8.8562 | 8.0407 | 0.4748 | 8.4551 | 9.6611 | 9.5939 | 1.2972 | 9.1795 |
| W.B. (2) XXIII. 535 ... | 8.8555 | 8.0300 | 0.4752 | 8.4498 | 9.6600 | 9.5895 | 1.2974 | 9.1697 |
| W.B. (2) XXIII. 562 ... | 8.8511 | 8.0111 | 0.4764 | 8.4174 | 9.6590 | 9.5618 | 1.2977 | 9.1555 |
| W.B. (2) XXIII. 567 ... | 8.8469 | 8.0026 | 0.4774 | 8.3833 | 9.6591 | 9.5321 | 1.2978 | 9.1514 |
| W.B. (2) XXIII. 748 ... | 8.8589 | 7.8981 | 0.4783 | 8.4596 | 9.6447 | 9.5981 | 1.2996 | 9.0366 |
| W.B. (2) XXIII. 800 ... | 8.8522 | 7.8527 | 0.4799 | 8.4108 | 9.6440 | 9.5564 | 1.3000 | 8.9983 |
| W.B. (2) XXIII. 816 ... | 8.9034 | 7.8810 | 0.4751 | 8.6510 | 9.6155 | 9.7456 | 1.3002 | 8.9756 |
| W.B. (2) XXIII. 821 ... | 8.8509 | 7.8248 | 0.4806 | 8.3986 | 0.6425 | 9.5458 | 1.3003 | 8.9720 |
| W.B. (2) XXIII. 840 ... | 8.8571 | 7.8036 | 0.4803 | 8.4444 | 9.6377 | 9.5854 | 1.3005 | 8.9446 |
| Rümker 11619 | 8.8507 | 7.7356 | 0.4819 | 8.3923 | 9.6369 | 9.5403 | 1.3009 | 8.8837 |
| W.B. (2) XXIII. 937 ... | 8.8716 | 7.6920 | 0.4810 | 8.5229 | 9.6206 | 9.6504 | 1.3012 | 8.8194 |
| W.B. (2) XXIII. 993 ... | 8.8554 | 7.5663 | 0.4834 | 8.4243 | 9.6253 | 9.5683 | 1.3016 | 8.7103 |
| Piazzi xxiii. 240 | 8.8617 | 7.4345 | 0.4842 | 8.4652 | 9.6154 | 9.6027 | 1.3019 | 8.5725 |
| W.B. (2) XXIII. 1062 ... | 8.8618 | 7.4139 | 0.4843 | 8.4657 | 9.6145 | 9.6036 | 1.3019 | 8.5518 |
| W.B. (2) XXIII. 1154 ... | 8.8614 | 7.3423 | 0.4847 | 8.4627 | 9.6127 | 9.6010 | 1.3020 | 8.4807 |
| W.B. (1) XXIII. 1085 ... | 8.8240 | 7.2610 | 0.4871 | 7.3558 | 9.6381 | 8.5317 | 1.3020 | 8.4368 |
| Σ 3054 | 8.8276 | 7.0218 | 0.4869 | 7.9462 | 9.6357 | 9.1185 | 1.3021 | 8.1941 |
| W.B. (2) XXIII. 1289 ... | +8.8639 | -6.3053 | +0.4870 | +8.4766 | -9.5987 | -9.6127 | -1.3022 | -7.4415 |

Constants, for Reduction to Mean R.A., of Stars very near the Pole, between
 0° and 3° N.P.D., for the epochs 1865 and 1868.

| Number in Radcliffe Catalogue. | Number in Groom- bridge. | a | | b | | c | | d | |
|-----------------------------------|-----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| | | 1865. | 1868. | 1865. | 1868. | 1865. | 1868. | 1865. | 1868. |
| 229 | 144 | +0°3419 | +0°3457 | +9°6642 | +9°6744 | +1°0907 | +1°1024 | +0°3417 | +0°3455 |
| 559 | ..... | 0°3584 | 0°3618 | 0°1006 | 0°1108 | 1°4525 | 1°4615 | 0°3583 | 0°3617 |
| 745 | ..... | +0°1725 | +0°1764 | 0°0767 | 0°0783 | 1°4312 | 1°4325 | +0°1722 | +0°1762 |
| 1864 | 1119 | -0°1042 | -0°1216 | 0°5631 | 0°5584 | 1°8831 | 1°8767 | -0°1041 | -0°1215 |
| 2273 | ..... | 0°0334 | 0°0338 | 0°0150 | 0°0109 | 1°3768 | 1°3732 | 0°0330 | 0°0333 |
| 2407 | ..... | 0°1970 | 0°1953 | 9°9942 | 9°9878 | 1°3588 | 1°3526 | 0°1967 | 0°1950 |
| 2594 | ..... | 0°3530 | 0°3492 | +9°8126 | +9°8030 | 1°2066 | 1°1988 | 0°3529 | 0°3490 |
| 2836 | 1871 | 0°1323 | 0°1297 | -8°8826 | -8°8845 | +0°2711 | +0°2698 | 0°1318 | 0°1292 |
| 3000 | 2006 | 0°3509 | 0°3460 | 9°8516 | 9°8427 | -1°0475 | -1°0368 | 0°3507 | 0°3458 |
| 3087 | 2065 | 0°2995 | 0°2963 | 9°9396 | 9°9324 | 1°1574 | 1°1487 | 0°2993 | 0°2961 |
| 3414 | 2283 | -0°0323 | -0°0330 | 0°1165 | 0°1128 | 1°3643 | 1°3601 | -0°0320 | -0°0327 |
| 4980 | ..... | +9°9905 | +9°9900 | 0°0747 | 0°0783 | 1°3165 | 1°3206 | +9°9901 | +9°9896 |
| 5776 | ..... | +0°1316 | +0°1338 | -9°7517 | -9°7562 | -0°9159 | -0°9221 | +0°1311 | +0°1333 |

Constants in R.A. for other Circumpolar Stars, for the epochs 1865 and 1870.

| Name; or Number in Radcliffe Catalogue. | Number in Groom- bridge. | a | | b | | c | | d | |
|--|-----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| | | 1865. | 1870. | 1865. | 1870. | 1865. | 1870. | 1865. | 1870. |
| 102 | 67 | +9°9342 | +9°9368 | +8°9422 | +8°9523 | +0°6832 | +0°6868 | +9°9329 | +9°9355 |
| Radcliffe 270 ... 2 Ursæ Minoris } | 177 | 9°9214 | 9°9239 | 9°2746 | 9°2823 | 0°8388 | 0°8430 | 9°9201 | 9°9226 |
| 713 | ..... | 9°9425 | 9°9435 | 9°7988 | 9°8049 | 1°1949 | 1°1998 | 9°9417 | 9°9426 |
| 870 | 595 | 9°6842 | 9°6836 | 9°6877 | 9°6912 | 1°1070 | 1°1097 | 9°6822 | 9°6816 |
| 953 | 642 | 9°8065 | 9°8048 | 9°8925 | 9°8968 | 1°2718 | 1°2753 | 9°8056 | 9°8039 |
| 1115 | 750 | 9°6153 | 9°6110 | 9°8330 | 9°8358 | 1°2235 | 1°2258 | 9°6138 | 9°6105 |
| 1272 | ..... | 9°5561 | 9°5487 | 9°9588 | 9°9614 | 1°3278 | 1°3299 | 9°5551 | 9°5477 |
| 1311 | ..... | 9°4670 | 9°4586 | 9°9322 | 9°9342 | 1°3049 | 1°3066 | 9°4658 | 9°4574 |
| 1377 | ..... | 9°3578 | 9°3472 | 9°9172 | 9°9189 | 1°2922 | 1°2935 | 9°3564 | 9°3458 |
| 1459 | 944 | +9°1436 | +9°1275 | +9°8869 | +9°8879 | +1°2665 | +1°2673 | +9°1420 | +9°1259 |

Constants in R.A. for other Circumpolar Stars, for the epochs 1865 and 1870
(continued).

| Name; or Number in Radcliffe Catalogue. | Number in Groom- bridge. | a | | b | | c | | d | |
|--|-----------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| | | 1865. | 1870. | 1865. | 1870. | 1865. | 1870. | 1865. | 1870. |
| 1571 | 1004 | +8°58'96 | +8°43'75 | +0°07'17 | +0°07'19 | +1°42'63 | +1°42'65 | +8°58'89 | +8°43'68 |
| 1979 | ..... | -9°66'64 | -9°67'37 | 0°03'39 | 0°03'07 | 1°39'31 | 1°39'02 | -9°66'57 | -9°67'30 |
| 2020 | ..... | 9°61'72 | 9°62'41 | 9°94'54 | 9°94'23 | 1°31'63 | 1°31'36 | 9°61'62 | 9°62'31 |
| 2125 | 1418 | 9°67'77 | 9°68'02 | 9°85'04 | 9°84'71 | 1°23'65 | 1°23'37 | 9°67'64 | 9°67'89 |
| 2129 | ..... | 9°69'93 | 9°69'97 | 9°86'18 | 9°85'83 | 1°24'59 | 1°24'30 | 9°69'61 | 9°69'84 |
| 2162 | ..... | 9°61'12 | 9°61'27 | 9°73'63 | 9°73'33 | 1°14'45 | 1°14'21 | 9°60'91 | 9°61'06 |
| 2189 | ..... | 9°78'97 | 9°79'11 | 9°87'84 | 9°87'41 | 1°26'00 | 1°25'63 | 9°78'87 | 9°79'01 |
| 2210 | ..... | 9°70'39 | 9°70'48 | 9°76'07 | 9°75'71 | 1°16'40 | 1°16'10 | 9°70'22 | 9°70'32 |
| 2218 | ..... | 9°68'22 | 9°68'31 | 9°73'30 | 9°72'95 | 1°14'21 | 1°13'93 | 9°68'03 | 9°68'12 |
| 2404 | ..... | 9°76'92 | 9°76'85 | 9°58'80 | 9°58'36 | 1°03'35 | 1°03'03 | 9°76'72 | 9°76'65 |
| 2462 | 1620 | 9°82'55 | 9°82'42 | 9°54'42 | 9°53'90 | 0°99'94 | 0°99'57 | 9°82'38 | 9°82'24 |
| 2507 | ..... | 9°88'61 | 9°88'43 | 9°52'64 | 9°52'05 | 0°99'08 | 0°98'67 | 9°88'47 | 9°88'29 |
| 2560 | ..... | 9°86'52 | 9°86'28 | 9°41'39 | 9°40'74 | 0°91'66 | 0°91'25 | 9°86'36 | 9°86'11 |
| 2612 | ..... | 0°00'62 | 0°00'34 | 9°45'17 | 9°44'37 | 0°94'13 | 0°93'60 | 0°00'53 | 0°00'25 |
| 2684 | ..... | 9°91'82 | 9°91'57 | 9°15'29 | 9°14'47 | 0°77'20 | 0°76'79 | 9°91'68 | 9°91'43 |
| 2705 | ..... | 0°01'65 | 0°01'30 | 9°20'59 | 9°19'63 | 0°79'84 | 0°79'35 | 0°01'52 | 0°01'21 |
| 2738 | ..... | 0°00'99 | 0°00'67 | 9°00'74 | 8°99'62 | 0°70'83 | 0°70'37 | 0°00'89 | 0°00'58 |
| 2792 | 1850 | 0°01'80 | 0°01'50 | +7°97'66 | +7°91'41 | 0°51'34 | 0°50'99 | 0°01'72 | 0°01'41 |
| 2905 | 1923 | 9°82'76 | 9°82'54 | -9°04'40 | -9°04'26 | 9°93'65 | 9°93'95 | 9°82'55 | 9°82'33 |
| 2930 | 1940 | 9°80'57 | 9°80'37 | 9°13'47 | 9°13'30 | +9°54'53 | +9°55'75 | 9°80'35 | 9°80'14 |
| 3016 | 2007 | 9°89'83 | 9°89'59 | 9°46'06 | 9°45'69 | -0°43'17 | -0°42'37 | 9°89'69 | 9°89'45 |
| 3075 | ..... | 9°93'80 | 9°93'56 | 9°58'12 | 9°57'69 | 0°65'85 | 0°65'13 | 9°93'69 | 9°93'45 |
| 3157 | 2099 | 9°95'97 | 9°95'76 | 9°73'76 | 9°73'27 | 0°89'58 | 0°88'90 | 9°95'89 | 9°95'67 |
| 3324 | 2210 | 9°89'52 | 9°89'44 | 9°88'24 | 9°87'70 | 1°08'75 | 1°07'95 | 9°89'44 | 9°89'35 |
| 3340 | 2213 | 9°67'87 | 9°67'84 | 9°70'00 | 9°69'75 | 0°84'09 | 0°83'72 | 9°67'67 | 9°67'63 |
| 3362 | ..... | 9°80'69 | 9°80'69 | 9°85'51 | 9°85'16 | 1°05'15 | 1°04'70 | 9°80'59 | 9°80'58 |
| 3475 | ..... | 9°64'19 | 9°64'31 | 9°83'14 | 9°82'90 | 1°02'05 | 1°01'73 | 9°64'04 | 9°64'16 |
| 3523 | ..... | 9°63'13 | 9°63'34 | 9°88'98 | 9°88'73 | 1°09'50 | 1°09'18 | 9°63'01 | 9°63'22 |
| 3522 | ... | 9°48'48 | 9°48'61 | 9°74'85 | 9°74'68 | 0°90'87 | 0°90'64 | 9°48'24 | 9°48'37 |
| 3685 | ..... | 9°24'62 | 9°25'30 | 9°86'11 | 9°86'00 | 1°05'82 | 1°05'68 | 9°24'45 | 9°25'12 |
| 3749 | ..... | 8°89'44 | 8°91'01 | 9°85'76 | 9°85'71 | 1°05'37 | 1°05'30 | 8°89'26 | 8°90'83 |
| 3798 | ..... | -8°90'32 | -8°95'47 | 0°09'99 | 0°09'93 | 1°34'51 | 1°34'44 | -8°90'26 | -8°94'51 |
| 3900 | ... | +8°60'31 | +8°57'38 | 9°83'35 | 9°83'37 | 1°02'25 | 1°02'28 | +8°60'10 | +8°57'17 |
| 3963 24 Ursa Min.... | 2667 | 9°05'87 | 9°01'91 | 0°10'07 | 0°10'14 | 1°34'43 | 1°34'51 | 9°05'81 | 9°01'84 |
| 4208 | ... | +9°44'33 | +9°43'41 | -0°02'83 | -0°02'99 | -1°26'23 | -1°26'41 | +9°44'45 | +9°43'41 |

Constants in R.A. for other Circumpolar Stars, for the epochs 1865 and 1870
(continued).

| Number in Radcliffe Catalogue. | Number in Groom- bridge. | <i>a</i> | | <i>b</i> | | <i>c</i> | | <i>d</i> | |
|-----------------------------------|-----------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| | | 1865. | 1870. | 1865. | 1870. | 1865. | 1870. | 1865. | 1870. |
| 4476 | ..... | +9°59'26 | +9°58'95 | -9°9'149 | -9°9'173 | -1°12'62 | -1°12'91 | +9°59'15 | +9°58'84 |
| 4881 | ..... | 9°63'44 | 9°63'41 | 9°75'91 | 9°76'05 | 0°92'41 | 0°92'59 | 9°63'25 | 9°63'22 |
| 4894 | ..... | 9°64'13 | 9°64'10 | 9°75'81 | 9°76'05 | 0°92'27 | 0°92'59 | 9°63'95 | 9°63'91 |
| 5090 | ..... | 9°73'77 | 9°73'80 | 9°75'63 | 9°75'92 | 0°92'08 | 0°92'46 | 9°73'62 | 9°73'64 |
| 5301 | 3548 | 9°92'85 | 9°92'97 | 9°82'86 | 9°83'38 | 1°01'77 | 1°02'15 | 9°92'77 | 9°92'89 |
| 5723 | 3820 | 9°88'26 | 9°88'48 | 9°53'33 | 9°53'71 | 0°56'89 | 0°57'59 | 9°88'13 | 9°88'34 |
| 5760 | ..... | 9°79'70 | 9°79'89 | 9°42'06 | 9°42'34 | -0°33'93 | -0°34'62 | 9°79'49 | 9°79'68 |
| 6099 | ..... | 9°94'12 | 9°94'38 | 9°13'80 | 9°14'03 | +9°51'06 | +9°49'00 | 9°93'99 | 9°94'26 |
| 6117 | ..... | 9°95'61 | 9°95'90 | 9°11'35 | 9°11'58 | 9°67'58 | 9°66'18 | 9°95'50 | 9°95'78 |
| 6119 | 4101 | 0°04'19 | 0°04'52 | 9°19'24 | 9°19'53 | 8°56'82 | 8°23'05 | 0°04'11 | 0°04'44 |
| 6172 | ..... | 9°85'81 | 9°86'04 | 8°83'30 | 8°83'26 | 0°23'38 | 0°23'38 | 9°85'62 | 9°85'86 |
| 6253 | 4193 | +9°97'53 | +9°97'83 | -8°44'56 | -8°43'44 | +0°40'04 | +0°40'26 | +9°97'42 | +9°97'72 |

*Constants, for Reduction to Mean N.P.D., of Stars very near the Pole,
for the epochs 1865 and 1868.*

| Number in Radecliffe Catalogue. | Number in Groom- bridge. | <i>a'</i> | | <i>b'</i> | | <i>c'</i> | | <i>d'</i> | |
|------------------------------------|-----------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|
| | | 1865. | 1868. | 1865. | 1868. | 1865. | 1868. | 1865. | 1868. |
| 229 | 144 | +9'2851 | +9'2914 | -9'9904 | -9'9902 | -1'2928 | -1'2925 | +9'3134 | +9'3191 |
| 559 | ..... | 9'6744 | 9'6796 | 9'9420 | 9'9405 | 1'2443 | 1'2428 | 9'6847 | 9'6895 |
| 745 | ..... | 9'7855 | 9'7841 | -9'8918 | -9'8928 | -1'1943 | -1'1952 | 9'7964 | 9'7949 |
| 1864 | 1119 | 9'9718 | 9'9692 | +9'5156 | +9'5358 | +0'8179 | +0'8381 | 9'9753 | 9'9727 |
| 2273 | ..... | 9'8274 | 9'8249 | 9'8580 | 9'8602 | 1'1607 | 1'1628 | 9'8401 | 9'8378 |
| 2407 | ..... | 9'7121 | 9'7084 | 9'9277 | 9'9291 | 1'2302 | 1'2315 | 9'7253 | 9'7218 |
| 2594 | ..... | +9'4222 | +9'4165 | 9'9825 | 9'9829 | 1'2849 | 1'2853 | +9'4422 | +9'4369 |
| 2836 | 1871 | -8'8897 | -8'8928 | 9'9988 | 9'9988 | 1'3015 | 1'3015 | -8'7507 | -8'7541 |
| 3000 | 2006 | 9'4970 | 9'4921 | 9'9791 | 9'9794 | 1'2815 | 1'2818 | 9'4797 | 9'4763 |
| 3087 | 2065 | 9'6160 | 9'6131 | 9'9620 | 9'9625 | 1'2644 | 1'2649 | 9'6020 | 9'5989 |
| 3414 | 2283 | 9'8967 | 9'8950 | +9'8030 | +9'8056 | +1'1055 | +1'1081 | 9'8876 | 9'8858 |
| 4980 | ..... | 9'8976 | 9'8992 | -9'8028 | -9'8005 | -1'1055 | -1'1030 | 9'8876 | 9'8892 |
| 5776 | ..... | -9'6067 | -9'6083 | -9'9647 | -9'9644 | -1'2674 | -1'2670 | -9'5854 | -9'5873 |

Constants in N.P.D. for other Circumpolar Stars, for the epochs 1865 and 1870.

| Name; or Number in Radecliffe Catalogue. | Number in Groom- bridge. | <i>a'</i> | | <i>b'</i> | | <i>c'</i> | | <i>d'</i> | |
|---|-----------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|
| | | 1865. | 1870. | 1865. | 1870. | 1865. | 1870. | 1865. | 1870. |
| 102 | 67 | +8'8294 | +8'8420 | -9'9965 | -9'9949 | -1'3000 | -1'2999 | +9'0058 | +9'0132 |
| Radecliffe 270 ... 2 Ursa Minoris } | 177 | 9'2686 | 9'2748 | 9'9879 | 9'9877 | 1'2914 | 1'2912 | 9'3425 | 9'3474 |
| 713 | ..... | 9'7445 | 9'7483 | 9'9089 | 9'9071 | 1'2119 | 1'2101 | 9'7659 | 9'7694 |
| 870 | 595 | 9'8224 | 9'8197 | 9'8457 | 9'8436 | 1'1500 | 1'1479 | 9'8512 | 9'8532 |
| 953 | 642 | 9'8709 | 9'8735 | 9'8013 | 9'7977 | 1'1045 | 1'1008 | 9'8883 | 9'8907 |
| 1115 | 750 | 9'9117 | 9'9134 | 9'7129 | 9'7085 | 1'0166 | 1'0122 | 9'9321 | 9'9337 |
| 1272 | ..... | 9'9534 | 9'9547 | 9'5647 | 9'5560 | 0'8679 | 0'8592 | 9'9684 | 9'9698 |
| 1311 | ..... | 9'9597 | 9'9609 | 9'5095 | 9'5001 | 0'8129 | 0'8035 | 9'9759 | 9'9770 |
| 1377 | ..... | 9'9673 | 9'9682 | 9'4233 | 9'4119 | 0'7268 | 0'7154 | 9'9841 | 9'9849 |
| 1459 | 944 | +9'9748 | +9'9753 | -9'2480 | -9'2316 | -0'5518 | -0'5354 | +9'9930 | +9'9936 |

Constants in N.P.D. for other Circumpolar Stars, for the epochs 1865 and 1870
(continued).

| Name ; or Number in Radclyffe Catalogue. | Number in Groom- bridge. | a' | | b' | | c' | | d' | |
|---|-----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| | | 1865. | 1870. | 1865. | 1870. | 1865. | 1870. | 1865. | 1870. |
| 1571 | 1004 | +9'9883 | +9'9884 | -8'5122 | -8'3647 | -9'8151 | -9'6676 | +9'9998 | +9'9999 |
| 1979 | ..... | 9'9508 | 9'9490 | +9'5950 | +9'6040 | +0'8980 | +0'9069 | 9'9633 | 9'9616 |
| 2020 | ..... | 9'9412 | 9'9392 | 9'6274 | 9'6357 | 0'9307 | 0'9389 | 9'9567 | 9'9549 |
| 2125 | 1418 | 9'8996 | 9'8976 | 9'7451 | 9'7491 | 1'0486 | 1'0526 | 9'9191 | 9'9173 |
| 2129 | ..... | 9'8976 | 9'8956 | 9'7507 | 9'7548 | 1'0542 | 1'0582 | 9'9165 | 9'9146 |
| 2162 | ..... | 9'8773 | 9'8754 | 9'7759 | 9'7789 | 1'0803 | 1'0832 | 9'9032 | 9'9015 |
| 2189 | ..... | 9'8714 | 9'8688 | 9'7996 | 9'8031 | 1'1028 | 1'1063 | 9'8894 | 9'8870 |
| 2210 | ..... | 9'8520 | 9'8497 | 9'8176 | 9'8201 | 1'1214 | 1'1240 | 9'8761 | 9'8740 |
| 2218 | ..... | 9'8476 | 9'8454 | 9'8207 | 9'8232 | 1'1248 | 1'1272 | 9'8734 | 9'8715 |
| 2404 | ..... | 9'7047 | 9'7017 | 9'9198 | 9'9209 | 1'2239 | 1'2250 | 9'7405 | 9'7279 |
| 2462 | 1620 | 9'6268 | 9'6233 | 9'9458 | 9'9464 | 1'2497 | 1'2505 | 9'6662 | 9'6631 |
| 2507 | ..... | 9'5620 | 9'5578 | 9'9607 | 9'9613 | 1'2643 | 1'2649 | 9'6025 | 9'5990 |
| 2560 | ..... | 9'4700 | 9'4654 | 9'9728 | 9'9732 | 1'2766 | 1'2770 | 9'5231 | 9'5195 |
| 2612 | ..... | 9'3814 | 9'3757 | 9'9829 | 9'9832 | 1'2860 | 1'2863 | 9'4293 | 9'4244 |
| 2684 | ..... | 9'1279 | 9'1202 | 9'9923 | 9'9925 | 1'2959 | 1'2960 | 9'2284 | 9'2229 |
| 2705 | ..... | 9'0975 | 9'0888 | 9'9940 | 9'9941 | 1'2971 | 1'2972 | 9'1847 | 9'1783 |
| 2738 | ..... | +8'8491 | +8'8363 | 9'9970 | 9'9970 | 1'3001 | 1'3001 | 8'9956 | 8'9874 |
| 2792 | 1850 | -8'2713 | -8'3019 | 9'9991 | 9'9991 | 1'3022 | 1'3022 | +7'9586 | +7'8991 |
| 2905 | 1923 | 9'3098 | 9'3108 | 9'9921 | 9'9921 | 1'2964 | 1'2964 | -9'2106 | -9'2113 |
| 2930 | 1940 | 9'4010 | 9'4016 | 9'9881 | 9'9880 | 1'2926 | 1'2925 | 9'3194 | 9'3197 |
| 3016 | 2007 | 9'5753 | 9'5749 | 9'9715 | 9'9716 | 1'2751 | 1'2752 | 9'5352 | 9'5341 |
| 3075 | ..... | 9'6356 | 9'6343 | 9'9605 | 9'9608 | 1'2638 | 1'2641 | 9'6049 | 9'6032 |
| 3157 | 2099 | 9'7328 | 9'7310 | 9'9324 | 9'9332 | 1'2355 | 1'2362 | 9'7112 | 9'7092 |
| 3324 | 2210 | 9'8581 | 9'8562 | 9'8553 | 9'8572 | 1'1583 | 1'1602 | 9'8427 | 9'8407 |
| 3340 | 2213 | 9'8823 | 9'8814 | 9'8366 | 9'8377 | 1'1408 | 1'1419 | 9'8599 | 9'8588 |
| 3362 | ..... | 9'8885 | 9'8870 | 9'8230 | 9'8249 | 1'1263 | 1'1282 | 9'8723 | 9'8707 |
| 3475 | ..... | 9'9409 | 9'9399 | 9'7332 | 9'7357 | 1'0369 | 1'0394 | 9'9242 | 9'9231 |
| 3523 | ..... | 9'9570 | 9'9561 | 9'6826 | 9'6862 | 0'9861 | 0'9896 | 9'9423 | 9'9413 |
| 3522 | ..... | 9'9632 | 9'9625 | 9'6774 | 9'6797 | 0'9820 | 0'9843 | 9'9436 | 9'9429 |
| 3685 | ..... | 0'0029 | 0'0025 | 9'3710 | 9'3784 | 0'6750 | 0'6823 | 9'9876 | 9'9871 |
| 3749 | ..... | 0'0128 | 0'0126 | 9'0324 | 9'0484 | 0'3365 | 0'3524 | 9'9974 | 9'9973 |
| 3798 | ..... | 0'0084 | 0'0082 | +8'8018 | +8'8537 | +0'1046 | +0'1565 | 9'9991 | 9'9989 |
| 3900 | ..... | 0'0153 | 0'0154 | -8'7668 | -8'7373 | -0'0711 | -0'0416 | 9'9993 | 9'9994 |
| 3963 24 Ursa Min.... } | 2667 | 0'0075 | 0'0078 | 8'9556 | 8'9156 | 0'2585 | 0'2184 | 9'9982 | 9'9985 |
| 4208 | ..... | -9'9965 | -9'9972 | -9'4019 | -9'3907 | -0'7050 | -0'6936 | -9'9857 | -9'9864 |

Constants in N.P.D. for other Circumpolar Stars, for the epochs 1865 and 1870
(continued).

| Number in Radcliffe Catalogue. | Number in Groom- bridge. | <i>a'</i> | | <i>b'</i> | | <i>c'</i> | | <i>d'</i> | |
|-----------------------------------|-----------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|
| | | 1865. | 1870. | 1865. | 1870. | 1865. | 1870. | 1865. | 1870. |
| 4476 | ..... | -9'9695 | -9'9705 | -9'6322 | -9'6277 | -0'9356 | -0'9310 | -9'9556 | -9'9566 |
| 4881 | ..... | 9'9222 | 9'9231 | 9'7771 | 9'7754 | 1'0812 | 1'0794 | 9'9026 | 9'9036 |
| 4894 | ..... | 9'9197 | 9'9206 | 9'7815 | 9'7798 | 1'0856 | 1'0838 | 9'9001 | 9'9011 |
| 5090 | ..... | 9'8786 | 9'8797 | 9'8384 | 9'8370 | 1'1422 | 1'1408 | 9'8586 | 9'8599 |
| 5301 | 3548 | 9'8117 | 9'8136 | 9'8927 | 9'8914 | 1'1957 | 1'1944 | 9'7942 | 9'7963 |
| 5723 | 3820 | 9'6451 | 9'6462 | 9'9590 | 9'9587 | 1'2626 | 1'2623 | 9'6111 | 9'6124 |
| 5760 | ..... | 9'6316 | 9'6322 | 9'9626 | 9'9625 | 1'2669 | 1'2667 | 9'5882 | 9'5890 |
| 6099 | ..... | 9'2736 | 9'2727 | 9'9935 | 9'9935 | 1'2969 | 1'2969 | 9'1915 | 9'1911 |
| 6117 | ..... | 9'2392 | 9'2384 | 9'9944 | 9'9944 | 1'2978 | 1'2978 | 9'1529 | 9'1525 |
| 6119 | 4101 | 9'2192 | 9'2187 | 9'9949 | 9'9949 | 1'2979 | 1'2979 | 9'1458 | 9'1458 |
| 6172 | ..... | 9'1254 | 9'1229 | 9'9962 | 9'9963 | 1'3003 | 1'3003 | 8'9730 | 8'9703 |
| 6253 | 4193 | -8'7783 | -8'7702 | -9'9987 | -9'9988 | -1'3020 | -1'3021 | -8'4696 | -8'4560 |

- Jan. 1. *Piazzi i. 191*—Close double? very faint.
 α *Arietis*—Observed over 4 wires only;
 very faint, cloudy, noise, high wind.
 γ *Ceti*—Clock hardly audible at the
 passage over the two last wires.
 [δ] 2 L.—Observed over 3 wires only.
 2. α *Ophiuchi*—Filmy; faint.
 3. \odot 2 L.—Observed over 3 wires only;
 very faint.
 5. Very hazy.
 6. \odot 2 L.—Observed over 4 wires only.
 α *Aquilæ*—Faint; filmy.
 ξ^2 *Ceti*—Great noise.
 $\left. \begin{array}{l} \text{R.A. } 4^h 43^m \\ \text{N.P.D. } 53^\circ 6' \end{array} \right\}$ —Extremely faint.
Piazzi iv. 279—Companion $7^m.5$. (= 7.5
 mag.)
 δ 1 *Orionis*—Faint.
 8. \odot 1 L.—Not observed; cloudy.
 \odot 2 L.—Observed over 4 wires only.
 ν *Pisium*—High wind.
 β *Arietis*—Cloudy; faint.
Groombridge 750—Cloudy; observed
 over 2 wires only.
 9. 6 *Trianguli*—Close double.
B.A.C. 803—A hazy object.
 γ *Ceti*—Ill-defined; great noise.
 β 2 *Eridani*—Companion $7^m.7$.
 11. *Groombridge 2213 S.P.*—Observed over
 3 wires only.
B.A.C. 1111 (R.)—Unsteady.
Piazzi iv. 278—Companion $8^m.0$.
 ρ *Orionis*—Close double; companion
 $10^m.5$.
 12. 66 *Ceti*—Companion $8^m.5$.
 γ *Tauri*—Ill-defined.
 ξ^2 *Ceti*—Filmy.
B.A.C. 1711—Very faint.
 β 3 *Tauri*—A thick film.
 α *Orionis*—Ill-shaped.
 14. *Mercury*—Observed over 3 wires only.
 15. Σ 369—Close double.
 f *Tauri*—Cloudy; observed over 4 wires
 only.
 δ *Eridani*—Cloudy.
 16. δ *Uranæ Minoris S.P.*—Cloudy.
 19. \odot 1 and 2 L.—Each observed over 4
 wires only; cloudy.
 ϵ *Pegasi*—Observed over 4 wires only;
 very faint; high wind.
 α *Ceti*—Faint.
 δ *Arietis*—High wind.
 20. η *Eridani*—Cloudy.
 κ^2 *Ceti*—Noise, and bells ringing.
- Jan. 20. *Groombridge 750*—Observed over 3
 wires only.
 ρ *Orionis*—Companion $8^m.5$.
 Σ 697—Companion $8^m.5$.
 δ *Orionis*—Companion $7^m.4$.
 Σ 921—Companion $9^m.5$.
 ν^1 *Canis Majoris*—Companion $8^m.0$.
 22. α *Leporis*—Very unsteady.
Mercury—Observed over one wire only;
 hardly visible.
 23. *Groombridge 2210 S.P.*—Very hazy.
B.A.C. 1110—Companion $10^m.0$.
B.A.C. 1340—Very unsteady.
B.A.C. 1388—Noise.
 γ *Camelopardalis (R.)*—Ill-defined.
 ρ *Orionis*—Companion $9^m.0$.
 β 11 *Tauri*—Companion $9^m.5$.
 ζ *Orionis*—Companion $10^m.5$.
 24. \odot —Observed through thin clouds
 without the blind, which stuck fast
 and could not be got clear in time.
 25. δ —Great undulation.
 β *Canis Majoris*—Very unsteady; great
 noise.
 ξ *Geminorum*—Faint; a thick fog com-
 ing on.
 γ 40 *Geminorum*—Very faint.
 29. \odot 2 L.—Observed over 2 wires only.
 δ *Ceti*—Thin clouds.
 σ *Arietis*—Faint.
 γ 40 *Tauri*—Cloudy; two bells, cries, and
 a railway whistle.
 β 68 *Geminorum*—Very faint; cloudy;
 observed over 4 wires only.
 δ 2 L.—Observed over 4 wires only.
 31. 48 *Geminorum*—Very faint; observed
 over 4 wires only.
 A boisterous night; alternately cloudy
 and clear.
- Feb. 2. *B.A.C. 1509 (R.)*—Faint and unsteady.
Capella (R.)—Very ill-defined.
B.A.C. 1961—Unsteady.
 3. σ *Tauri*—Cloudy.
 μ *Eridani*—Very unsteady; high wind.
 ϵ *Leporis*—Clock hardly audible.
 Σ 688—Both stars of $8^m.0$.
 The night cloudy.
 5. \odot —Great undulation.
 α *Aquilæ*—High wind.
 7. Σ 576—Great noise; observed over 4
 wires only.
 Σ 688—Unsteady. Both stars of the
 $8^m.0$.
 δ *Orionis*—Companion $8^m.0$.

- Feb. 7. B.A.C. 1816—Cloudy.
 B.A.C. 1907—Cloudy.
 B.A.C. 2140—High wind.
 16 Monocerotis—Observed over 4 wires only; clock not audible at times.
 B.A.C. 2356—Observed over 4 wires only; clock not audible at times.
 η Canis Minoris—High wind.
 Mercury—Very faint; high wind.
8. α Pegasi—Very faint. Observed over 3 wires only.
9. Mercury—Cloudy; observed over 2 wires only.
10. Σ 541—Not seen double.
 5 Orionis—High wind and bells ringing.
 O.A. (S.Z.) 5589—Faint and unsteady.
12. B.A.C. 2271—Cloudy.
 B.A.C. 2731—Cloudy; faint.
 ☉—Cloudy; faint. The 1st L. only observed over 2 wires and the 2nd over 3 only.
 α Pegasi—Observed over 4 wires only.
 Piazzi iv. 27S—Companion 8^m.3.
 Σ 1035—Companion 8^m.7.
 η^2 Puppis—Companion 6^m.5.
 ν^1 Cancri—Companion 8^m.3.
 In the later part of the night the stars unsteady and ill-defined.
 Mercury—Cloudy; observed over 2 wires only.
13. Piazzi v. 109—Companion not seen.
 θ Aurigæ—Reflected image very unsteady.
 20 Geminorum—Companion 7^m.4.
 The stars unsteady and ill-defined to night.
17. μ Eridani—A thick haze; only bright stars visible.
 α Orionis—Very unsteady and ill-defined.
 Σ 83S—Very faint; no companion visible.
19. ☉—Ill-defined.
 μ Eridani—A thick haze; only bright stars visible.
 Radcliffe 1377—Very faint.
 η Geminorum—Very unsteady.
 38 Geminorum—Faint.
21. ☉—Undulating.
 Radcliffe 1311—Hazy.
 B.A.C. 1564—Very faint.
 A Orionis—Not seen double; very unsteady and ill-shaped.
 α Orionis (R.)—Very tremulous.
 B.A.C. 2210—Very unsteady.
23. 119 Tauri } —Great noise.
 ζ Tauri }
 α Orionis—Very unsteady; cloudy.

- Feb. 24. D—Behind clouds; the S. limb hardly traceable.
 θ Canis Majoris—Observed over 2 wires only; cloudy.
 ϵ Canis Majoris—Observed over 4 wires only; cloudy.
25. Procyon—Clock striking.
 ζ Cancri—Very faint.
26. ι Aurigæ—Through clouds; faint.
27. Groombridge 944—Cloudy.
 Radcliffe 3798 S.P.—Filmy; faint.
 Σ 1198—Hazy; very faint.
 γ 2 L.—Observed over 3 wires only.
28. β Canis Majoris—Very unsteady.
 17 Canis Majoris—Ill-defined.
 κ Geminorum (R)—Unsteady.
 R.A. 7^h 47^m } —A faint companion?
 * N.P.D. 68° 49' }
 W.B. (2) IX. 71—Very faint; cloudy.
 D Limbs ill-defined.
- Mar. 1. ☉—Very pale; cloudy.
2. ☉—Limbs ill-defined.
 ι Aurigæ—Rather faint.
 κ Orionis—Very unsteady.
 Groombridge 1004—Observed over 3 wires only.
 24 Ursæ Minoris—Observed over 3 wires only.
 B.A.C. 2439 (R.)—Faint.
 κ Geminorum—Ill-defined.
 Σ 1183—Very unsteady.
 Lalande 16452—Very unsteady.
 W.B. (1) IX. 75—Many stars in the field; very faint.
5. ϵ Leporis—Cloudy; observed over 4 wires only.
 θ Canis Majoris—Very unsteady.
 24 Monocerotis—Cloudy.
 β Canis Minoris—Cloudy.
6. B.A.C. 1907—Foggy and cloudy.
 Σ 838—No companion seen.
 B.A.C. 2761—Faint.
 B.A.C. 3022—Faint.
8. ν Orionis—Cloudy.
 ν Geminorum—Cloudy; faint.
 41 Geminorum—Cloudy; faint.
12. α Columbae—Very faint.
 Radcliffe 2408 S.P.—Observed over 3 wires only.
 B.A.C. 2565—Cloudy.
 W.B. (2) VIII. 1160—Cloudy.
 B.A.C. 3356—Cloudy.
13. ϵ Hydra—Fluttering and ill-defined.
 Piazzi ix. 65—Companion 8^m.0.
14. κ Orionis—Faint; a thick mist.
 ν Orionis—Great noise.
 51 Geminorum—Very thick haze.
 62 Geminorum—Faint.

- Mar. 14. 38 Lyncis (R.)—Ill-defined.
W.B. (2) X. 220—Hardly observable;
very faint; sky very hazy.
16. κ Cancri—Faint; cloudy.
17. ϵ Canis Majoris
51 Geminorum } —Cloudy.
17. β Canis Minoris }
Procyon }
27. Mercury—Cloudy; observed over 4
wires only.
 α Arietis—Faint.
Sirius—Very filmy; light clouds.
 θ Canis Majoris—Hardly observable.
Groombridge 3548—Hardly discernable.
- April 5. 15 Hydræ—Unsteady; cloudy.
6. κ Cancri—Very faint.
83 Cancri—Hardly observable.
 ξ Leonis—High wind.
 ϵ Leonis—Unsteady.
13. π Leonis—Clock hardly audible.
90 Leonis—Companion 8^m.8.
Piazzi xii. 196—Not seen double.
B.A.C. 4472—Cloudy.
Polaris—Unsteady.
14. \odot 1 L. observed over one wire; and
2 L. observed over 3 wires only.
 γ Leonis—Ill-defined and unsteady.
34 Sextantis—Cloudy.
15. At 23^h 25^m the pendulum of the Transit
Circle clock was stopped, and shorten-
ed $\frac{3}{4}$ of a division.
17. 34 Sextantis—A thick mist.
 δ^2 Hydræ } —Cloudy.
 δ Leonis }
Groombridge 1850—Observed over 3
wires only.
The stars very unsteady to-night.
Polaris—Cloudy; very faint; observed
over 3 wires only.
18. 5 Sextantis—Faint; hazy; noise.
W.B. (2) XII. 1019—Hardly observable.
Polaris S.P.—Very unsteady.
81 Virginis—Not seen double.
The stars to-night very unsteady and
ill-shaped.
20. δ —Cloudy; N. L. hardly observable.
 μ Hydræ—Sky overspread with thin
clouds.
34 Sextantis—Faint.
54 Leonis—Noise; very unsteady.
 δ Leonis—Unsteady and ill-defined.
21. δ N. L.—Faint.
34 Sextantis—Cloudy; very faint; noise.
 d Leonis—Cloudy; very faint.
27 Virginis—Noise; clock hardly audible.
81 Virginis—Not seen double.
22. Polaris—Unsteady.
23. γ Leonis—Elongated.
- April 23. Polaris S.P.—Very unsteady.
The sky very clear but the stars ill-
shaped and rather unsteady.
24. W.B. (2) X. 995—Very faint.
W.B. (2) XIII. 461—Hardly observe-
able; very faint.
The stars unsteady and ill-defined to-
night.
25. β Virginis—Very unsteady.
25. π Virginis—Very unsteady.
Polaris S.P.—Very unsteady.
- May 2. δ Leonis—Foggy, and thin clouds.
 τ Leonis—Faint.
 τ Coronæ—Very faint.
3. τ Leonis—A thick mist.
 γ Corvi—Hardly visible.
1 Boötis—Not seen double; sky very
bad.
2 Libræ—Very unsteady.
Mercury—Hardly discernable; observed
over 3 wires only.
4. δ Leonis—Unsteady and ill-defined.
 Σ 1575—Companion 8^m.0.
Piazzi xii. 33—Companion 7^m.8.
 τ Virginis—Very unsteady.
7. \odot 2 L.—Observed over 4 wires only.
Aldebaran—Very faint.
 π Virginis—Great noise.
 ϵ Corvi—A thick mist.
W.B. (2) XII. 409—Very faint.
Piazzi xii. 196—A faint companion?
W.B. (2) XII. 1063—Hardly observe-
able.
 κ Virginis—Great noise.
 ξ Boötis—Ill-defined and unsteady.
9. \odot —Great noise and high wind.
 l Leonis—Very faint.
 π Virginis—Noise.
12. m Virginis—Faint.
Groombridge 2213—Observed over 3
wires only.
15. η Virginis—Misty.
35 Virginis—Faint.
Polaris S.P.—Unsteady.
17. 35 Virginis—Faint.
Groombridge 2099—Observed over 3
wires only.
Piazzi xiv. 62—Companion 8^m.2.
 Σ 4962—Companion 7^m.6.
18. Rigel—Very faint.
 β Tauri—Observed over 4 wires only.
 m Virginis—Hardly visible.
19. ϵ Boötis—Unsteady.
21. \odot 2 L.—Observed over 2 wires only.
 δ Orionis—Observed over 3 wires only;
very faint.
Radcliffe 3075—Observed over 3 wires
only.

- May 21. Radcliffe 713 S.P.—Observed over 4 wires only.
 Σ 904—Companion 7^m 7.
 δ Leonis—Faint.
 χ Leonis—Hardly visible.
 ϵ Leonis—Very faint.
 ν Leonis—Sky filmy; faint.
23. Rigel—Faint and unsteady.
 ϵ Leonis—Observed over 4 wires only.
 Radc. 713—Observed over 3 wires only.
 α Serpentis—Very unsteady.
24. η Virginis—Observed over 4 wires only.
 \mathcal{D} —Undulating.
 W.B. (2) XII. 1124—Faint and unsteady.
 58 Virginis—Faint.
 R.A. 14^h 25^m } —Hardly observable;
 * N.P.D. 61° 37' } a thick haze.
 ξ^1 Libræ—Unsteady.
 B.A.C. 5104—Very faint.
 B.A.C. 5276—No companion seen.
 Groombridge 750 S.P.—Observed over 4 wires only.
25. \odot 2 L.—Cloudy; observed over 3 wires only.
 Rigel—Observed over 4 wires only; cloudy.
 β Tauri—Faint.
 ϵ Orionis—Faint; observed over 4 wires only.
28. Groombridge 595 S.P.—Observed over 2 wires only.
 Radc. 3362—Observed over 3 wires only.
 \mathcal{D} 2 L.—Observed over 3 wires only.
 \mathcal{D} S.L. and 2 L.—Considerably defective.
 ω Ophiuchi—Very unsteady.
29. α Coronæ—Ill-defined.
 γ Coronæ—Ill-defined; not seen double.
 (T) Coronæ—Somewhat ruddy.
 \mathcal{D} 1 and S. L.—Very indistinct.
 The stars to-night very unsteady and ill-shaped.
- June 2. \odot —Great undulation; cloudy.
 (T) Coronæ—Slightly ruddy.
6. B.A.C. 4621—Great noise with a large drum.
 Arcturus—Cloudy.
 f Boëtis—Cloudy; faint.
7. (T) Coronæ—Reddish.
 The night pretty clear; stars very steady and well-defined.
8. α Coronæ (R.)—Unsteady.
 η Draconis (R.)—Unsteady.
19. α Libræ—Unsteady; very hazy.
 B.A.C. 5128—Faint and unsteady.
 B.A.C. 5394—Observed over 3 wires only; noise.
 γ Herculis—Very unsteady.
- June 21. h Herculis—Very unsteady.
 m^2 Herculis—Companion 7^m 6.
21. Aldebaran—Cloudy.
22. \odot —Great undulation; noise; 1 L. observed over 4 wires only.
 τ Virginis—Very faint; hazy; noise.
 γ Herculis (R.)—Ill-defined.
 h Herculis—Unsteady and ill-shaped; noise.
 ζ Herculis—Unsteady and ill-shaped.
 β Tauri—Very faint.
23. ρ Boëtis—A thick mist all over the heavens.
 \mathcal{D} 1 L.—Observed over 3 wires only; very ill-defined.
 B.A.C. 5379—Hardly observable.
 ζ Herculis (R.)—Ill-defined.
25. κ Ophiuchi—Observed over 4 wires only; cloudy.
 Radcliffe 3749—Observed over 3 wires only.
 Groombridge 1004 S.P.—Observed over 3 wires only.
 Stars unsteady to-night.
 Rigel—Unsteady.
 β Tauri—Hardly discernable.
26. \odot —Great undulation. 2 L. observed over 2 wires only.
 Sirius—Very unsteady.
 Mercury—Observed over 2 wires only; cloudy.
 Pollux—Observed over 3 wires only; cloudy.
 A Scorpis—Noise.
 ζ Herculis (R.)—Very unsteady.
 56 Herculis (R.)—Faint.
 \mathcal{D} —2 L. and S. L.—Very imperfect.
 2 L. observed over 3 wires only.
 η Serpentis—Great noise. Stars very unsteady.
 Rigel—Very faint; observed through thin clouds.
27. Castor—Hardly discernable; observed over 4 wires only.
 Procyon—Faint.
 Pollux—Very faint.
 Radcliffe 3685—Hardly visible; observed over 4 wires only.
 89 Herculis—Noise.
 \mathcal{D} 2 L.—Observed over 4 wires only.
28. \odot —Great undulation.
 Mercury—Faint.
 Radcliffe 3523—Unsteady.
 κ Ophiuchi—Very unsteady and ill-defined.
 Σ 2391—Not seen double.
29. Procyon—Hardly discernable.
 Mercury—Faint.

- June 29. B.A.C. 5704—Observed over 3 wires only.
B.A.C. 5838—Very faint.
- July 2. Pollux—Cloudy; observed over 3 wires only.
4. ☉—The observation of the 2 L. prevented by clouds.
Castor—Cloudy.
Mercury—Cloudy; observed over 3 wires only; high wind and great noise.
γ Serpentis—Clock hardly audible.
Radcliffe 1272 S.P.—Cloudy; observed over 3 wires only; very faint.
6. ☉—Cloudy; observation of 2 L. prevented by clouds.
9. β Scorpii—Noise.
ε Herculis—Very unsteady.
α Herculis—Cloudy.
β Tauri—Cloudy.
α Orionis—Faint; observed over 4 wires only.
10. σ Ophiuchi—Very unsteady.
α Ophiuchi—Very unsteady and ill-shaped.
89 Herculis—Cloudy.
Σ 2426—Observed over 4 wires only.
After 10^h M.T., the stars very unsteady and ill-defined.
11. γ Herculis—Sky very hazy; unsteady; noise.
λ Ophiuchi—Not seen double.
ζ Herculis—Ill-defined.
γ¹ Sagittarii—Faint.
λ Lyrae—Very unsteady.
112 Herculis—Cloudy; faint.
α Orionis—Faint; cloudy; observed over 3 wires only.
13. Mercury—Faint; filmy.
14. Rad. 3749—Observed over 3 wires only.
ω Aquilæ—Unsteady.
16. ☉ 2 L.—Observed over 4 wires only.
Mercury—Very hazy; faint.
β Scorpii—Very faint.
ζ Herculis—Cloudy.
18. The first wire has become relaxed, and the following observations have been taken over 6 wires, unless otherwise mentioned.
♃ —Faint.
ζ Herculis—Ill-defined.
B.A.C. 6627—Very faint.
19. B.A.C. 5634—Faint; filmy.
α Ophiuchi—Cloudy; observed over 4 wires only.
μ Herculis—Cloudy.
W.B. (2) XIX, 432—Very unsteady.
20. δ Ursæ Min.—Observed over 4 wires only.
B.A.C. 6304.—Faint.

- July 20. 28 Sagittarii—Observed over 4 wires only.
Groombridge 1119 S.P.—Observed over 4 wires only.
h² Sagittarii—Observed over 2 wires only.
e¹ Sagittarii—Companion 7^m.8.
21. ☉—The observation of the S. L. not reduced, as there was some unintelligible mistake.
Mercury—Very faint.
♃ —Cloudy; very faint; observed over 2 wires only. N.P.D. uncertain; cloudy.
A Ophiuchi—Very unsteady and ill-shaped.
Groombridge 944 S.P.—Observed over 3 wires only.
23. ☉—Cloudy; 2 L. observed over 3 wires only.
κ Ophiuchi—Noise.
♃ —Cloudy.
30. W.B. (2) XVII. 1649—Filmy; clouds and cirri.
72 Ophiuchi—Very unsteady and ill-defined.
ε Aquilæ—Cloudy; very unsteady.
The stars very unsteady to-night.
31. Pollux—Very faint.
- Aug. 4. ☉—Cloudy; 1 L. observed over 3 wires, and the 2 L. observed over one wire only.
ζ Aquilæ—Cloudy.
ψ Sagittarii—Cloudy; observed over 4 wires only.
7. ☉—Cloudy; 1 L. observed over 4 wires, and the 2 L. observed over 2 wires only.
ζ Herculis—Faint; through clouds.
8. β Ophiuchi—Cloudy.
89 Herculis—Cloudy.
9. μ Herculis—Great noise.
W.B. (2) XVII. 1649—Great noise.
10. λ Ursæ Min.—Observed over 4 wires only.
15. β Aquilæ—Cloudy; observed over 2 wires only.
16. Clouds prevented the observation of the 1 L. of the ♃.
μ Sagittarii—Tremulous.
β Lyrae—Cloudy.
ω Aquilæ—Cloudy.
ι Equulei—Companion 7^m.7.
17. ♃ N. L. exceedingly faint.
α Delphini—Cloudy; observed over 3 wires only.
18. ☉—Observation of the 1 L. prevented by clouds, the 2 L. observed over 4 wires only.

- Aug. 18. J — Cloudy; observed over 3 wires only; faint.
W.B. (2) XVIII. 1099—Jumping.
Rad. 4208—Observed over 3 wires only.
 λ Ursæ Minoris (R.)—Very faint.
 β Delphini (R.)—Very unsteady.
21. β Ophiuchi—Cloudy.
89 Hercules—Cloudy; observed over 3 wires only.
 J — Cloudy; very faint; observed over 2 wires only.
22. The night very hazy and occasionally cloudy.
23. β Lyrae and ξ Aquilæ—Cloudy; faint.
 λ Ursæ Minoris—Cloudy; observed over 4 wires only.
24. β Lyrae—Faint; cloudy.
W.B. (2) XX. 1155—Observed over 3 wires only.
41 Aquarii—Companion 7^m.7.
25. λ Ursæ Min.—Observed over 4 wires only.
- Sept. 17. ϵ Pegasi and Radcliffe 2404—Very ill-defined and unsteady.
 Σ 2938—Filmy; faint. Companion 9^m.8.
W.B. (2) XXIII. 562—Noise.
Beginning with this day the observations were taken again over all the 7 wires, as the first wire had come back exactly to its old position.
19. μ Cygni—Companion 7^m.7
 ξ Aquarii—Companion 6^m.9.
 Σ 2988—Close double.
21. 64 Sagittarii—Cloudy; faint.
 ρ Capricorni—Observed over 2 wires only.
 ϵ Delphini—High wind; clock hardly audible.
32 Vulpeculæ—High wind and noise; observed over 3 wires only.
 ν Aquarii—Cloudy and faint; observed over 4 wires only.
Groombridge 3548—High wind and cloud; observed over 3 wires only.
 ξ Aquarii—Faint.
 J — Cloudy.
24. 32 Vulpeculæ—Bell ringing.
 σ Aquarii—Noise.
44 Piscium—Observed over 4 wires only.
 J 1 L.—Rather defective.
 J 2 L.—Observed over 4 wires only.
25. \odot 2 L.—Cloudy; observed over 1 wire only.
26. \odot —Hardly visible; through clouds.
- Oct. 8. \odot —Through clouds; 2 L. observed over 2 wires only.
B.A.C. 6792—Faint.
 Σ 2628—Blurred; double; (!) very indistinct.
- Oct. 8. Σ 2654—Companion 8^m.0.
 σ Aquarii—Foggy; faint.
B.A.C. 7951—Very unsteady.
9. \odot —Clouds prevented more than the transit of the 1st L. over 4 wires.
 ϵ Delphini—Cloudy.
14. Polaris S.P.—Cloudy; observed over 4 wires only.
15. Mercury—Cloudy; ill-defined and fluttering; observed over 3 wires only.
 ϵ Boötis—Faint.
 J —Observation of N. L. very uncertain both on account of defect of illumination and faintness; the moon was shining through clouds and disappeared at the moment of bisection.
Radcliffe 5090—Great noise; cloudy.
W.B. (2) XXI. 248—Very faint.
16. ϵ Boötis—Very faint.
B.A.C. 6788—Misty.
 μ Cygni (R.)—Unsteady.
 Σ 3019—Companion 8^m.5.
 Σ 3054—Companion 10^m.0.
Polaris S.P.—High wind.
17. η Ursæ Maj.—Observed over 4 wires only.
Mercury—Very faint.
 ϵ Boötis—Hardly discernable.
 α Coronæ—Very faint; observed over 3 wires only.
 λ Ursæ Min.—Observed over 4 wires only.
 α^2 Capricorni—Faint.
 J —Tremulous.
19. The piers and walls very damp.
B.A.C. 7181—Foggy.
W.B. (2) XX. 1739—Companion 7^m.6.
B.A.C. 7356—Companion 7^m.5.
 ξ Aquarii—Cloudy.
 λ Capricorni—Cloudy; faint.
Groombridge 3820—Faint; cloudy.
22. ι Capricorni—Very unsteady; a bell ringing.
 γ Aquarii—Unsteady.
W.B. (2) XXIII. 1289—Noise, and a bell ringing.
 d Piscium—Very unsteady.
55 Piscium—Unsteady. Close double. Companion 9^m.5 (!)
 J —Undulating.
The night very bright, but the stars very unsteady.
23. 16 Pegasi—Jumping; noise.
26. W.B. (2) XXIII. 567—Cloudy; observed over 3 wires only.
 ι Piscium—Cloudy and hazy.
B.A.C. 8276—Very faint.
 ι Ceti—Very faint.
30. 32 Vulpeculæ—Great noise and high wind.

- Oct. 30. Groombridge 1620 S.P.—Cloudy.
W.B. (2) XXII. 876—Noise.
B.A.C. 7975—Unsteady.
γ Piscium—Great noise; clock hardly audible.
W.B. (2) O. 416—Companion 8^m.4.
31. Mercury—Fluttering.
Σ 2913—Companion 8^m.5.
W.B. (2) XXIII. 748—Great noise.
Piazzi xxiii. 240—Companion 9^m.5.
- Nov. 2. Polaris—Cloudy; faint.
η Piscium—Cloudy; observed over 3 wires only.
3. ι Pegasi—Cloudy; faint; noise.
B.A.C. 138—Companion 9^m.5.
ι Piscium—Companion 7^m.8.
W.B. (1) O. 855—Hardly observable; very faint.
5. Polaris S.P.—Very faint; light cirri.
ρ Boötis—High wind and noise.
6. ☉ Cloudy.
α Coronæ—High wind.
Mercury—Faint; ill-defined; noise and high wind.
W.B. (2) XXII. 759—Great noise; observed over 4 wires only.
W.B. (2) XXIII. 61—Noise; observed over 4 wires only.
Σ 3019—Companion 9^m.5.
δ Sculptoris—Faint.
9. α Coronæ—High wind.
12. ☉—Cloudy; very faint.
13. ♃—Cloudy; observed over 4 wires only.
B.A.C. 7444—Noise.
β Aquarii—Very unsteady and ill-defined.
ε Pegasi—Very unsteady and ill-defined.
14. ♃—Tremulous.
β Ceti—Very unsteady.
16. α Aquarii—Cloudy.
17. ☉ 2 L.—Observed over 3 wires only.
W.B. (2) XXII. 759—Hazy and foggy.
♃—Great undulation.
γ Pegasi—Cloudy.
ε Andromedæ—Cloudy; faint.
19. α Ophiuchi—Faint; observed over 4 wires only.
57 Pegasi—Not seen double.
94 Aquarii—Unsteady. Companion 8^m.0.
W.B. (2) O. 774—Noise.
36 Ceti—Thin clouds.
α Coronæ—Faint.
20. α Ophiuchi—Faint.
B.A.C. 7986—Unsteady.
γ Piscium—Unsteady.
W.B. (2) I. 265—Thin clouds. The stars unsteady to-night.
- Nov. 25. α Serpentis—Very faint.
27. W.B. (2) XXIII. 289—Very hazy.
δ Sculptoris—Faint, ill-defined, and unsteady.
Σ 3054—Faint.
ι Sculptoris—Very unsteady.
36 Andromedæ—Not seen double.
6 Trianguli—Companion 8^m.3.
Lalande 6001—Clock hardly audible; noise. Companion 8^m.3.
29. ε Boötis—Hardly observable.
α Coronæ—Faint.
30. ☉—Cloudy; 1 L. observed over 4 wires, and 2 L. observed over 3 wires only.
W.B. (1) O. 855—Hardly observable.
ψ¹ Piscium—Companion 9^m.9.
η Piscium—Cloudy.
- Dec. 7. δ Sculptoris—Clock hardly audible.
Piazzi i. 227—No companion seen.
66 Ceti—Companion 8^m.0.
σ Arietis—Noise.
W.B. (2) II. 1426—Cloudy.
η Draconis—Disturbed.
8. W.B. (2) XXIII. 1289—Hazy and foggy.
12 Ceti—Faint.
Lalande 6001—Companion 8^m.0.
32 Eridani—Companion 7^m.0.
The stars very ill-defined to-night.
At 2^h 55^m the pendulum of the Transit-Circle clock was stopped for about 2^m, and lengthened by $\frac{3}{4}$ of a division.
10. ☉—Cloudy; 2 L. observed over 3 wires only.
ι Piscium—Companion 8^m.0.
B.A.C. 459—Hazy.
W.B. (2) III. 412—Companion 8^m.1.
Stars very unsteady to night.
12. The room very wet.
β Andromedæ—Cloudy.
θ Ceti—Cloudy.
13. Groombridge 2283 S.P.—Observed over 3 wires only.
14. ♃—Faint.
ω Piscium and α Andromedæ—Cloudy.
B.A.C. 138—Companion 10^m.0.
100 Piscium—Companion 8^m.2 Blue; the companion red.
67 Ceti—A great noise.
Groombridge 716 (R.)—Unsteady.
ξ Persei—Ill-defined.
Lalande 8033—Very faint and ill-defined.
15. B.A.C. 221—High wind.
18. Mercury—An ill-defined and diffused spot of light.
α Herculis—Very faint; cloudy.

92 *Notes to the Observations made with the Transit-Circle, 1866.*

- Dec. 19. ☉—Great undulation.
 β Arietis—Hazy and foggy.
 Lalande 6001—Companion 8^m.0.
 Σ 427—Companion 8^m.0.
 B.A.C. 1475—Great noise.
 The stars unsteady and ill-defined to-
 night.
20. α Lyrae—Observed over 4 wires only.
28. B.A.C. 1017—High wind.
 Σ 394—Companion 8^m.0.
 11 Tauri—Cloudy.
 γ Eridani—Cloudy; faint.
 The night very stormy; the observations
 constantly interrupted by clouds.

- Dec. 29. ω^1 Tauri—Observed over 2 wires only;
 high wind.
31. ☉—Great undulation; pale through
 clouds; 1 L. observed over 4 wires,
 and 2 L. observed over 2 wires only.
- ν Piscium—Very misty.
 6 Trianguli—Companion 8^m.2.
 Σ 280—Companion 8^m.8.
 δ Arietis—Misty.
 Groombridge 716 (R.)—Very faint; a
 difficult observation.
 Radcliffe 3475 S.P.—Cloudy; observed
 over 3 wires only.
 ω^1 Tauri—Cloudy; very faint.

RADCLIFFE OBSERVATORY,
OXFORD.

CATALOGUE
OF
CONCLUDED MEAN RIGHT ASCENSIONS
AND
MEAN NORTH POLAR DISTANCES,
FOR 1866, JANUARY 1,
OF STARS OBSERVED IN THE YEAR 1866;
WITH THE
ANNUAL PRECESSIONS.

(THE NORTH POLAR DISTANCES BEING CORRECTED FOR FLEXURE OF THE
TELESCOPE AND THE CIRCLE, AND FOR ERROR OF COLATITUDE.)

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | | | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | | | Pre- cession in N.P.D. |
|-----|---------------------------|------|---------------------------|-----------------------------------|-------------------------------|----|-------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|----|-------|------------------------------|
| | | | | | h. | m. | s. | | | | ° | ' | " | |
| 1 | Lalande 47309 | 7.5 | 1 | 0.83 | 0 | 1 | 8.78 | +3.074 | 1 | 0.83 | 60 | 54 | 32.00 | -20.06 |
| 2 | α Andromedæ..... | ... | 6 | .86 | 0 | 1 | 27.81 | 3.086* | 6 | .86 | 61 | 38 | 58.06 | 19.90* |
| 3 | W.B. (2) O. 44 | 7.4 | 1 | .94 | 0 | 3 | 37.37 | 3.085 | 1 | .94 | 57 | 36 | 51.91 | 20.05 |
| 4 | W.B. (2) O. 112 ... | 7.6 | 3 | .80 | 0 | 5 | 21.01 | 3.084 | 3 | .80 | 68 | 11 | 21.59 | 20.05 |
| 5 | γ Pegasi | ... | 2 | .85 | 0 | 6 | 20.25 | 3.081* | 2 | .85 | 75 | 33 | 42.07 | 20.03* |
| 6 | χ Pegasi | ... | 2 | .91 | 0 | 7 | 40.42 | 3.087 | 2 | .92 | 70 | 32 | 17.16 | 20.04 |
| 7 | ι Ceti..... | ... | 8 | .90 | 0 | 12 | 35.98 | 3.058 | 8 | .90 | 99 | 34 | 1.06 | 20.03 |
| 8 | W.B. (2) O. 328 | 7.5 | 1 | .83 | 0 | 13 | 16.83 | 3.105 | 1 | .83 | 66 | 4 | 42.82 | 20.02 |
| 9 | d Piscium | ... | 1 | .81 | 0 | 13 | 42.08 | 3.081 | 1 | .81 | 82 | 33 | 14.08 | 20.02 |
| 10 | Lalande 387 | 7.7 | 2 | .76 | 0 | 14 | 11.40 | 3.110 | 2 | .76 | 65 | 24 | 19.50 | 20.02 |
| 11 | ι Sculptoris..... | ... | 2 | .93 | 0 | 14 | 46.99 | 3.022 | 2 | .93 | 119 | 43 | 19.12 | 20.01 |
| 12 | Σ 28 (2)..... | 8.3 | 1 | .83 | 0 | 16 | 52.07 | 3.124 | 1 | .83 | 61 | 14 | 27.56 | 20.00 |
| 13 | 44 Piscium | ... | 2 | .92 | 0 | 18 | 32.02 | 3.073 | 2 | .92 | 88 | 48 | 8.97 | 19.99 |
| 14 | 10 Ceti | 7.0 | 2 | .86 | 0 | 19 | 45.24 | 3.069 | 2 | .86 | 90 | 47 | 31.95 | 19.98 |
| 15 | 12 Ceti | 6.4 | 7 | .88 | 0 | 23 | 12.00 | 3.059* | 7 | .88 | 94 | 41 | 51.71 | 19.94* |
| 16 | Groombridge 67..... | 7.5 | ... | ... | 0 | 23 | 21 | ..... | 2 | .89 | 4 | 25 | 19.50 | 19.95 |
| 17 | W.B. (2) O. 609..... | 7.4 | 1 | .91 | 0 | 24 | 30.56 | 3.124 | 1 | .91 | 69 | 54 | 36.67 | 19.94 |
| 18 | W.B. (2) O. 639 | 7.5 | 1 | .83 | 0 | 25 | 36.90 | 3.133 | 1 | .83 | 67 | 32 | 51.32 | 19.93 |
| 19 | B.A.C. 138 | 7.6 | 2 | .90 | 0 | 27 | 39.35 | 3.056 | 2 | .90 | 95 | 17 | 11.55 | 19.91 |
| 20 | W.B. (2) O. 742..... | 7.9 | 1 | .88 | 0 | 29 | 25.58 | 3.135 | 1 | .88 | 69 | 39 | 48.47 | 19.89 |
| 21 | B.A.C. 158 | 6.0 | 1 | .79 | 0 | 30 | 11.10 | 3.192 | 1 | .79 | 55 | 20 | 17.53 | 19.88 |
| 22 | ϵ Andromedæ..... | ... | 1 | .87 | 0 | 31 | 28.87 | 3.170 | 1 | .87 | 61 | 24 | 58.58 | 19.87 |
| 23 | 54 Piscium ... | 6.7 | 2 | .83 | 0 | 32 | 23.71 | 3.141 | 2 | .83 | 69 | 28 | 23.38 | 19.86 |
| 24 | 55 Piscium | 6.4 | 1 | .81 | 0 | 32 | 52.53 | 3.143 | 1 | .81 | 69 | 17 | 49.22 | 19.85 |
| 25 | W.B. (2) O. 873..... | 7.5 | 2 | .94 | 0 | 33 | 56.32 | 3.143 | 2 | .94 | 60 | 42 | 53.98 | 19.84 |
| 26 | β Ceti | ... | 6 | .89 | 0 | 36 | 51.66 | 3.012* | 5 | .88 | 108 | 43 | 20.91 | 19.82* |
| 27 | W.B. (2) O. 1016 ... | 7.4 | 1 | .83 | 0 | 39 | 39.36 | 3.159 | 1 | .83 | 69 | 6 | 29.58 | 19.76 |
| 28 | B.A.C. 221 | ... | 1 | .95 | 0 | 41 | 21.20 | 3.090 | 1 | .95 | 85 | 24 | 31.31 | 19.73 |
| 29 | δ Piscium | ... | 2 | .84 | 0 | 41 | 43.93 | 3.100 | 2 | .84 | 83 | 8 | 41.62 | 19.72 |
| 30 | i Piscium (S. star) ... | 7.3 | 1 | .84 | 0 | 42 | 41.49 | 3.197 | 1 | .84 | 63 | 1 | 12.93 | 19.71 |
| 31 | i Piscium (N. star) .. | 7.9 | 1 | .94 | 0 | 42 | 41.74 | 3.197 | 1 | .94 | 63 | 1 | 8.75 | 19.71 |
| 32 | W.B. (1) O. 741 ... | 8.1 | 1 | .93 | 0 | 43 | 30.57 | 3.083 | 1 | .93 | 87 | 20 | 54.34 | 19.69 |
| 33 | 36 Andromedæ | 6.5 | 3 | .93 | 0 | 47 | 47.91 | 3.188 | 3 | .93 | 67 | 5 | 52.41 | 19.62 |
| 34 | W.B. (2) O. 1218 .. | 7.1 | 3 | .83 | 0 | 48 | 4.64 | 3.194 | 3 | .83 | 66 | 10 | 11.60 | 19.61 |
| 35 | μ Andromedæ | ... | 3 | .88 | 0 | 49 | 19.38 | +3.292 | 3 | .88 | 52 | 13 | 43.21 | -19.59 |

N°. 12. Σ 28 Companion 8.4 mag. N°. 19. B.A.C. 138. Companion 9.5 mag.

N°. 24. 55 Piscium. Companion 9.5 7 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | Pre- cession in N.P.D. |
|-----|------------------------------|------|---------------------------|-----------------------------------|-------------------------------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|------------------------------|
| | | | | | h. m. s. | s. | | | ° ' " | " |
| 36 | W.B. (1) O. 855..... | ... | 2 | 0.87 | 0 49 49.85 | +3.077 | 2 | 0.87 | 88 50 58.81 | -19.58 |
| 37 | 2 Ursæ Minoris | ... | ... | ... | 0 50 58 | ..... | 1 | .95 | 4 27 48.10 | 19.57 |
| 38 | Piazzi O. 253 | 7.5 | 2 | .94 | 0 53 19.39 | 3.186 | 2 | .94 | 69 28 23.86 | 19.51 |
| 39 | ε Piscium | ... | 3 | .89 | 0 55 59.36 | 3.111* | 3 | .89 | 82 49 54.45 | 19.46* |
| 40 | B.A.C. 293 | 7.4 | 2 | .83 | 0 56 49.98 | 3.105 | 2 | .83 | 83 57 19.68 | 19.44 |
| 41 | *..... | 6.8 | 1 | .91 | 0 56 54.73 | 3.196 | 1 | .91 | 69 20 33.52 | 19.44 |
| 42 | B.A.C. 299 | 7.1 | 1 | .88 | 0 57 8.59 | 3.253 | 2 | .89 | 61 3 25.29 | 19.43 |
| 43 | ψ ¹ Piscium | ... | ... | ... | 0 58 30 | ..... | 2 | .96 | 69 14 38.70 | 19.40 |
| 44 | B.A.C. 325 | ... | 1 | .86 | 1 1 21.81 | 3.128 | 1 | .86 | 80 48 30.01 | 19.34 |
| 45 | β Andromedæ | ... | 2 | .95 | 1 2 14.14 | 3.321 | 2 | .95 | 55 5 25.53 | 19.32 |
| 46 | 36 Ceti | 7.3 | 2 | .89 | 1 6 3.09 | 3.021 | 2 | .89 | 97 29 43.48 | 19.23 |
| 47 | φ Piscium | 6.0 | 1 | .91 | 1 6 28.75 | 3.240 | 1 | .91 | 66 7 34.03 | 19.22 |
| 48 | B.A.C. 375 | 8.0 | 1 | .95 | 1 8 17.50 | 2.954 | 1 | .95 | 106 31 40.25 | 19.17 |
| 49 | Polaris..... | ... | 16 | .38 | 1 9 57.44 | 19.636* | 42 | .54 | 1 24 18.77 | 19.13* |
| 50 | ν Piscium | ... | ... | ... | 1 12 5 | ..... | 1 | .97 | 63 36 17.17 | 19.07 |
| 51 | ι Piscium..... | ... | 1 | .88 | 1 13 43.22 | 3.295 | 1 | .88 | 61 57 47.61 | 19.03 |
| 52 | W.B. (2) I. 265 | 7.3 | 2 | .90 | 1 13 59.17 | 3.239 | 2 | .90 | 68 19 45.23 | 19.02 |
| 53 | θ Ceti | ... | 3 | .93 | 1 17 19.62 | 2.996* | 3 | .93 | 98 52 31.50 | 18.70* |
| 54 | W.B. (2) I. 408 | 7.5 | 1 | .95 | 1 19 44.00 | 3.281 | 1 | .95 | 65 15 24.27 | 18.85 |
| 55 | B.A.C. 439 | 6.5 | 1 | .88 | 1 21 11.99 | 3.207 | 1 | .88 | 73 36 55.46 | 18.81 |
| 56 | 97 Piscium | 7.2 | 2 | .83 | 1 22 39.11 | 3.221 | 2 | .83 | 72 20 17.55 | 18.77 |
| 57 | 48 Ceti | 6.0 | 1 | .93 | 1 23 10.38 | 2.876 | 1 | .93 | 112 19 24.49 | 18.75 |
| 58 | η Piscium | ... | 4 | .68 | 1 24 18.94 | 3.198* | 4 | .68 | 75 20 44.72 | 18.71* |
| 59 | B.A.C. 455 | 7.2 | 1 | .85 | 1 24 50.09 | 3.212 | 1 | .85 | 73 43 12.10 | 18.69 |
| 60 | B.A.C. 459 | 8.1? | 1 | .94 | 1 25 27.13 | 3.167 | 1 | .94 | 78 48 24.13 | 18.68 |
| 61 | 100 Piscium | 7.6 | 1 | .95 | 1 27 44.53 | 3.176 | 1 | .95 | 78 7 42.21 | 18.60 |
| 62 | 50 Ceti | 6.0 | 1 | .88 | 1 29 26.79 | 2.924 | 1 | .88 | 106 5 12.55 | 18.55 |
| 63 | π Piscium | 6.4 | 2 | .83 | 1 29 59.76 | 3.175 | 1 | .83 | 78 32 41.51 | 18.52 |
| 64 | ν Piscium | ... | 7 | .54 | 1 34 27.58 | 3.114* | 7 | .54 | 85 11 28.78 | 18.33* |
| 65 | ο Piscium | ... | 2 | .88 | 1 38 19.16 | 3.153 | 2 | .88 | 81 31 4.54 | 18.24 |
| 66 | B.A.C. 549 | 7.8 | 2 | 0.85 | 1 41 5.56 | 3.238 | 2 | 0.85 | 73 38 56.41 | 18.13 |
| 67 | χ Ceti | ... | 1 | 1.00 | 1 43 0.29 | 2.954 | 1 | 1.00 | 101 21 0.95 | 18.06 |
| 68 | Piazzi i. 191 | ... | 1 | 0.00 | 1 44 55.53 | 3.177 | 1 | 0.00 | 79 51 7.54 | 17.99 |
| 69 | β Arietis..... | ... | 7 | .65 | 1 47 14.53 | 3.296* | 7 | .65 | 69 50 53.73 | 17.79* |
| 70 | B.A.C. 579 | ... | 1 | .88 | 1 47 59.24 | +3.522 | 1 | .88 | 53 22 52.18 | -17.87 |

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | Pre- cession in N.P.D. |
|-----|---------------------------|------|---------------------------|-----------------------------------|-------------------------------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|------------------------------|
| | | | | | h. m. s. | s. | | | c " " | " |
| 71 | 50 Cassiopeiæ | ... | ... | ... | 1 52 5 | ..... | 4 | 0'94 | 18 13 45'90 | -17'70 |
| 72 | Piazzi I. 227 | 7'5 | 1 | 0'93 | 1 53 10'83 | +3'141 | 1 | '93 | 83 43 56'90 | 17'66 |
| 73 | B.A.C. 627 | ... | 2 | '92 | 1 55 15'80 | 2'689 | 2 | '92 | 120 38 46'40 | 17'57 |
| 74 | B.A.C. 631 | ... | 1 | 0'88 | 1 56 3'27 | 3'101 | 1 | 0'88 | 87 17 37'02 | 17'54 |
| 75 | B.A.C. 632 | 6'7 | 1 | 1'00 | 1 56 22'03 | 3'277 | 1 | 1'00 | 72 23 30'31 | 17'53 |
| 76 | α Arietis | ... | 7 | 0'30 | 1 59 37'46 | 3'366* | 7 | 0'30 | 67 10 20'94 | 17'23* |
| 77 | 6 Trianguli | 6'3 | 3 | '64 | 2 4 36'08 | 3'465 | 3 | '64 | 60 19 35'29 | 17'16 |
| 78 | ξ ¹ Ceti | ... | 2 | '88 | 2 5 54'04 | 3'172 | 2 | '88 | 81 47 0'29 | 17'10 |
| 79 | 66 Ceti | 7'0 | 2 | '93 | 2 5 56'97 | 3'034 | 2 | '93 | 93 1 15'89 | 17'10 |
| 80 | W.B. (2) II. 154 ... | 7'8 | 2 | '49 | 2 7 42'90 | 3'427 | 2 | '49 | 63 15 49'73 | 17'02 |
| 81 | 21 Arietis | ... | 1 | '85 | 2 8 7'06 | 3'392 | 1 | '85 | 65 34 48'53 | 17'00 |
| 82 | γ Trianguli | ... | ... | ... | 2 9 21 | ..... | 4 | '94 | 46 46 29'21 | 16'94 |
| 83 | 67 Ceti | ... | 4 | '50 | 2 10 18'05 | 2'986* | 4 | '50 | 97 2 27'64 | 16'77* |
| 84 | * | 7'6 | 3 | '65 | 2 13 39'44 | 3'380 | 3 | '65 | 67 11 17'35 | 16'74 |
| 85 | W.B. (2) II. 348 ... | 8'2 | 4 | '24 | 2 15 29'62 | 3'435 | 4 | '24 | 63 55 44'68 | 16'65 |
| 86 | Piazzi II. 89 | 7'5 | 2 | '51 | 2 20 20'25 | 3'502 | 2 | '51 | 60 43 46'08 | 16'41 |
| 87 | 13 Trianguli | ... | 1 | '02 | 2 20 57'22 | 3'504 | 1 | '02 | 60 40 21'77 | 16'38 |
| 88 | ξ ² Ceti | ... | 5 | '56 | 2 21 2'24 | 3'180* | 5 | '56 | 82 8 30'98 | 16'36* |
| 89 | B.A.C. 766 | 6'5 | 2 | '02 | 2 22 50'29 | 3'428 | 2 | '02 | 65 21 36'51 | 16'28 |
| 90 | Radcliffe 713 S.P. ... | ... | ... | ... | 2 23 0 | ..... | 4 | '39 | 3 32 23'93 | 16'27 |
| 91 | B.A.C. 775 | ... | 1 | 0'90 | 2 24 26'16 | 2'734 | 1 | 0'90 | 113 8 25'98 | 16'20 |
| 92 | Σ 280 (S. star) | 8'0 | 1 | 1'00 | 2 27 26'87 | 2'984 | 1 | 1'00 | 96 13 42'36 | 16'05 |
| 93 | 15 Trianguli | 6'5 | 2 | 0'94 | 2 27 39'35 | 3'614 | 2 | 0'94 | 55 53 54'50 | 16'04 |
| 94 | 31 Arietis | 6'0 | 2 | '47 | 2 29 19'66 | 3'241 | 2 | '47 | 78 8 5'40 | 15'94 |
| 95 | B.A.C. 803 | ... | 2 | '02 | 2 30 22'70 | 2'587 | 2 | '02 | 120 37 46'72 | 15'89 |
| 96 | Piazzi II. 135 | 7'1 | 1 | '96 | 2 30 53'70 | 3'173 | 1 | '96 | 82 53 9'66 | 15'86 |
| 97 | 81 Ceti | ... | 1 | '03 | 2 30 56'71 | 3'014 | 1 | '03 | 93 58 37'42 | 15'86 |
| 98 | δ Ceti | ... | 2 | '05 | 2 32 37'00 | 3'067 | 2 | '05 | 90 15 2'75 | 15'77 |
| 99 | γ Ceti | ... | 6 | '49 | 2 36 21'55 | 3'101* | 6 | '49 | 87 19 49'43 | 15'38* |
| 100 | ε Arietis | 6'5 | 2 | '46 | 2 37 10'14 | 3'293 | 2 | '46 | 75 15 25'20 | 15'52 |
| 101 | μ Ceti | ... | 1 | '06 | 2 37 42'15 | 3'214 | 1 | '06 | 80 27 10'95 | 15'49 |
| 102 | W.B. (2) II. 907 ... | 7'7 | 1 | '93 | 2 38 12'86 | 3'383 | 1 | '93 | 69 52 27'18 | 15'46 |
| 103 | W.B. (2) II. 976 ... | 8'0 | 2 | '50 | 2 40 57'81 | 3'617 | 1 | '96 | 57 42 56'52 | 15'31 |
| 104 | W.B. (2) II. 1004 ... | 7'5 | 1 | '90 | 2 41 58'82 | 3'572 | 1 | '90 | 60 1 49'62 | 15'26 |
| 105 | σ Arietis | 6'3 | 7 | '42 | 2 44 5'92 | +3'298 | 7 | '42 | 75 28 17'29 | -15'13 |

Nº. 77. 6 Trianguli. Companion 8'2 mag. Nº. 79. 66 Ceti. Companion 8'3 mag.

Nº. 92. Σ 280. Companion 8'8 mag.

| No. | Name of Star | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | Pre-cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | Pre-cession in N.P.D. |
|-----|-----------------------------|------|------------------------|--------------------------------|-------------------------|---------------------|--------------------------|--------------------------------|---------------------------|-----------------------|
| | | | | | h. m. s. | s. | | | ° ' " | " |
| 106 | W.B. (2) II. 1094 | 7.6 | 1 | 0.93 | 2 46 7.23 | +3.507 | 1 | 0.93 | 63 48 6.28 | -15.02 |
| 107 | W.B. (2) II. 1137 | 7.6 | 3 | .62 | 2 47 43.57 | 3.513 | 3 | .62 | 63 39 58.64 | 14.92 |
| 108 | 21 Persei | 6.0 | 2 | .98 | 2 49 9.65 | 3.620 | 2 | .98 | 58 36 26.95 | 14.84 |
| 109 | W.B. (2) II. 1184 | 7.4 | 1 | .01 | 2 49 54.88 | 3.613 | 1 | .01 | 59 1 25.85 | 14.79 |
| 110 | W.B. (2) II. 1202 | 7.5 | 1 | .90 | 2 50 49.42 | 3.467 | 1 | .90 | 66 24 18.65 | 14.74 |
| 111 | 7 Eridani | 6.8 | 2 | .50 | 2 54 5.95 | 3.016 | 2 | .50 | 93 24 42.52 | 14.54 |
| 112 | α Ceti | ... | 5 | .21 | 2 55 16.60 | 3.127* | 4 | .25 | 86 26 16.49 | 14.36* |
| 113 | 52 Arietis | 6.5 | 3 | .65 | 2 57 35.40 | 3.501 | 3 | .65 | 65 16 6.61 | 14.33 |
| 114 | β Persei | ... | 2 | .95 | 2 59 27.37 | 3.875 | 2 | .95 | 49 33 45.51 | 14.22 |
| 115 | W.B. (2) II. 1426 | 8.3 | 1 | .93 | 3 0 4.22 | 3.475 | 1 | .93 | 66 49 10.63 | 14.18 |
| 116 | Groombridge 595 ... | 6.7 | ... | ... | 3 1 8 | ..... | 5 | .40 | 5 34 21.23 | 14.12 |
| 117 | δ Arietis | ... | 4 | .50 | 3 3 58.25 | 3.418* | 4 | .50 | 70 46 54.73 | 13.93* |
| 118 | Σ 369 (1st star) ... | 7.2 | 4 | .71 | 3 8 26.42 | 3.893 | 4 | .71 | 50 0 46.10 | 13.65 |
| 119 | B.A.C. 1017 | ... | 1 | .99 | 3 10 21.30 | 3.730 | 1 | .99 | 56 16 14.22 | 13.53 |
| 120 | 59 Arietis | 7.0 | 1 | .94 | 3 11 55.94 | 3.568 | 1 | .94 | 63 24 56.26 | 13.43 |
| 121 | τ^1 Arietis | ... | 2 | .04 | 3 13 29.77 | 3.448 | 2 | .04 | 69 20 17.11 | 13.33 |
| 122 | W.B. (2) III. 279 | 7.5 | 1 | .07 | 3 14 4.10 | 3.671 | 1 | .07 | 59 4 13.47 | 13.28 |
| 123 | κ^2 Ceti | 6.0 | 1 | .05 | 3 14 6.21 | 3.126 | 1 | .05 | 86 48 30.34 | 13.28 |
| 124 | α Persei | ... | ... | ... | 3 14 46 | ..... | 2 | .95 | 40 37 (10.21) | 13.19* |
| 125 | 65 Arietis | 6.5 | 2 | .50 | 3 16 42.84 | 3.445 | 2 | .50 | 69 40 26.16 | 13.11 |
| 126 | σ Tauri | ... | 3 | .34 | 3 17 36.30 | 3.224 | 3 | .34 | 81 26 40.06 | 13.05 |
| 127 | Σ 394 (1st star) ... | 7.6 | 3 | .66 | 3 20 18.25 | 3.444 | 3 | .66 | 70 0 16.29 | 12.87 |
| 128 | f Tauri | 5.9 | 4 | .29 | 3 23 28.72 | 3.300 | 4 | .29 | 77 31 27.75 | 12.66 |
| 129 | ϵ Eridani | ... | 4 | .27 | 3 26 37.07 | 2.888 | 4 | .27 | 99 54 48.45 | 12.44 |
| 130 | B.A.C. 1097 | 7.0 | 1 | .95 | 3 26 40.65 | 3.715 | 1 | .95 | 58 26 1.99 | 12.44 |
| 131 | B.A.C. 1110 | 7.0 | 1 | .06 | 3 29 54.98 | 3.073 | 1 | .06 | 89 51 5.42 | 12.21 |
| 132 | B.A.C. 1111 | ... | ... | ... | 3 30 33 | ..... | 8 | .46 | 27 13 20.84 | 12.17 |
| 133 | Σ 427 (2nd star) ... | 7.7 | 1 | .96 | 3 32 27.79 | 3.647 | 1 | .96 | 61 39 42.47 | 12.03 |
| 134 | 11 Tauri | 6.5 | 4 | .28 | 3 32 46.37 | 3.568 | 4 | .28 | 65 6 23.20 | 12.01 |
| 135 | σ Persei | ... | 1 | .08 | 3 33 53.33 | 3.783 | 1 | .08 | 56 28 1.61 | 11.94 |
| 136 | Σ 436 (2nd star) ... | ... | 1 | .07 | 3 34 32.25 | 2.822 | 1 | .07 | 103 3 3.51 | 11.89 |
| 137 | W.B. (2) III. 748 | ... | 1 | .94 | 3 34 53.07 | 3.480 | 1 | .94 | 69 9 0.63 | 11.86 |
| 138 | B.A.C. 1143 | 6.9 | 1 | .05 | 3 36 40.69 | 3.476 | 1 | .05 | 69 29 48.90 | 11.74 |
| 139 | δ Eridani | ... | 3 | .33 | 3 36 49.78 | 2.876 | 3 | .33 | 100 13 7.68 | 11.73 |
| 140 | 24 Eridani | 6.0 | 2 | .06 | 3 37 42.24 | +3.041 | 2 | .06 | 91 35 15.00 | -11.67 |

No. 118. Σ 369. Companion 8.0 mag.No. 127. Σ 394. Companion 8.1 mag.

No. 131. B.A.C. 1110. Companion 10.0 mag.

No. 133. Σ 427. Companion 8.0 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | | | Pre- cession in N.P.D. |
|-----|----------------------------|------|---------------------------|-----------------------------------|-------------------------------|--------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|---|---|------------------------------|
| | | | | | h. m. s. | s. | | | | ° | ' | " | |
| 141 | α^1 Tauri | 6.0 | 1 | 0.06 | 3 38 33.38 | +3.178 | | 1 | 0.06 | 84 22 26.72 | | | -11.61 |
| 142 | e Tauri | ... | 2 | .51 | 3 40 55.56 | 3.279 | | 2 | .51 | 79 16 15.76 | | | 11.44 |
| 143 | B.A.C. 1179 | ... | 1 | .08 | 3 40 50.46 | 2.443 | | 1 | .08 | 119 45 21.73 | | | 11.43 |
| 144 | B.A.C. 1195 | 7.5 | 3 | .65 | 3 42 54.51 | 3.552 | | 2 | .65 | 66 26 44.02 | | | 11.29 |
| 145 | ζ Persei | ... | 2 | .53 | 3 45 42.90 | 3.753 | | 4 | .53 | 58 31 1.59 | | | 11.09 |
| 146 | 32 Eridani | 5.7 | 3 | .32 | 3 47 33.81 | 3.005 | | 3 | .32 | 93 21 9.88 | | | 10.95 |
| 147 | ϵ Persei | ... | 1 | .96 | 3 48 52.19 | 4.001 | | 1 | .96 | 50 22 48.51 | | | 10.86 |
| 148 | W.B. (2) III. 1057-8 | 7.5 | 1 | .07 | 3 49 20.76 | 3.501 | | 1 | .07 | 69 4 4.37 | | | 10.82 |
| 149 | γ Eridani | ... | 6 | .38 | 3 51 46.63 | 2.794* | | 6 | .38 | 103 53 29.76 | | | 10.53* |
| 150 | Groombridge 750 ... | 6.9 | ... | ... | 3 55 28 | ..... |  | 9 | .29 | 4 48 12.81 | | | 10.37 |
| 151 | W.B. (2) III. 1191... | 8.0 | 2 | .95 | 3 56 6.89 | 3.504 | | 2 | .95 | 69 18 5.68 | | | 10.32 |
| 152 | 40 Tauri | 6.7 | 2 | .50 | 3 56 38.52 | 3.172 | | 2 | .50 | 84 56 12.63 | | | 10.28 |
| 153 | ψ Tauri | 6.9 | 1 | .94 | 3 58 43.63 | 3.701 | | 3 | .33 | 61 21 51.38 | | | 10.12 |
| 154 | ω^1 Tauri | ... | 3 | .38 | 4 1 21.75 | 3.476 | | 4 | .53 | 70 44 51.20 | | | 9.92 |
| 155 | ρ Tauri | 6.6 | 2 | .08 | 4 2 40.49 | 3.642 | | 2 | .08 | 63 52 16.47 | | | 9.83 |
| 156 | B.A.C. 1281 | 7.5 | 2 | .94 | 4 3 24.98 | 3.412 | | 1 | .93 | 73 42 19.78 | | | 9.77 |
| 157 | B.A.C. 1289 | 6.8 | 2 | .49 | 4 4 54.73 | 3.546 | | 2 | .49 | 67 56 0.73 | | | 9.66 |
| 158 | ϕ^1 Eridani | ... | 2 | .07 | 4 5 19.55 | 2.921* | | 2 | .07 | 97 11 20.82 | | | 9.70* |
| 159 | Lalande 8033 | 7.3 | 2 | .52 | 4 10 5.52 | 2.580 | | 2 | .52 | 112 29 9.00 | | | 9.25 |
| 160 | 56 Tauri | 6.8 | 1 | .94 | 4 11 41.11 | 3.538 | | 1 | .94 | 68 33 9.33 | | | 9.13 |
| 161 | γ Tauri | ... | 9 | .38 | 4 12 10.24 | 3.397 | | 10 | .44 | 74 41 54.96 | | | 9.09 |
| 162 | B.A.C. 1338 | 7.3 | 4 | .29 | 4 13 41.47 | 3.537 | | 4 | .29 | 69 8 3.75 | | | 8.98 |
| 163 | B.A.C. 1340 | ... | 1 | .06 | 4 14 6.28 | 2.503 | | 1 | .06 | 115 20 55.81 | | | 8.94 |
| 164 | ξ Eridani | ... | 1 | .08 | 4 17 0.56 | 2.986 | | 1 | .08 | 94 3 26.29 | | | 8.71 |
| 165 | B.A.C. 1373 | 7.0 | 1 | .95 | 4 20 3.76 | 3.544 | | 1 | .95 | 68 40 54.11 | | | 8.47 |
| 166 | W.B. (1) IV. 417 ... | 8.0 | 1 | .11 | 4 20 42.80 | 3.280 | | 1 | .11 | 80 13 44.96 | | | 8.42 |
| 167 | ϵ Tauri | ... | 10 | .25 | 4 20 47.64 | 3.492* | | 11 | .32 | 71 7 10.05 | | | 8.38* |
| 168 | B.A.C. 1388 | 7.5 | 1 | .06 | 4 22 26.63 | 3.503 | | 1 | .06 | 70 27 16.63 | | | 8.28 |
| 169 | 46 Eridani | ... | 1 | .03 | 4 27 22.91 | 2.920 | | 1 | .03 | 97 1 17.29 | | | 7.88 |
| 170 | Aldebaran | ... | 9 | .29 | 4 28 14.06 | 3.435* | | 9 | .29 | 73 45 46.04 | | | 7.64* |
| 171 | σ^1 Tauri | ... | 1 | .14 | 4 31 30.22 | 3.415 | | 1 | .14 | 74 27 59.54 | | | 7.56 |
| 172 | Σ 576 (1st star)... | 8.0 | 1 | .10 | 4 31 46.70 | 2.778 | | 1 | .10 | 103 17 57.29 | | | 7.54 |
| 173 | Rudcliffe 1272 | 8.0 | ... | ... | 4 34 2 | ..... |  | 7 | .35 | 3 54 21.56 | | | 7.34 |
| 174 | 95 Tauri | 7.0 | 1 | .03 | 4 35 7.11 | +3.621 | | 1 | .03 | 66 10 4.43 | | | 7.26 |
| 175 | 4 Camelopardali | ... | ... | ... | 4 36 51 | ..... |  | 4 | .06 | 33 29 7.17 | | | -7.12 |

No. 146. 32 Eridani. Companion 7.2 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | Pre- cession in N.P.D. |
|-----|-----------------------------|------|---------------------------|-----------------------------------|-------------------------------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|------------------------------|
| | | | | | h. m. s. | s. | | | ° ' " | " |
| 176 | 56 Eridani | ... | 1 | 0.14 | 4 37 39.12 | +2.877 | 1 | 0.14 | 98 45 22.18 | -7.05 |
| 177 | μ Eridani | ... | 6 | .11 | 4 38 48.22 | 2.994 | 6 | .11 | 93 30 9.55 | 6.96 |
| 178 | B.A.C. 1475 | ... | 1 | .96 | 4 40 38.94 | 3.867 | 1 | .96 | 57 38 59.93 | 6.81 |
| 179 | B.A.C. 1482 | ... | 1 | .10 | 4 41 4.87 | 2.392 | 1 | .10 | 118 19 51.75 | 6.77 |
| 180 | *..... | ... | 1 | .01 | 4 43 1.74 | 4.019 | 1 | .01 | 53 5 12.78 | 6.61 |
| 181 | B.A.C. 1497 | 6.7 | 1 | .03 | 4 44 25.00 | 3.734 | 1 | .03 | 62 19 48.58 | 6.49 |
| 182 | Radcliffe 1311..... | 7.0 | ... | ... | 4 44 41 | ..... | 7 | .39 | 4 13 35.02 | 6.47 |
| 183 | 5 Orionis..... | ... | 1 | .11 | 4 46 23.55 | 3.122 | 1 | .11 | 87 42 57.56 | 6.33 |
| 184 | B.A.C. 1509 | ... | ... | ... | 4 47 33 | ..... | 2 | .09 | 16 26 34.38 | 6.23 |
| 185 | B.A.C. 1519 | 7.0 | 1 | .12 | 4 47 57.85 | 3.076 | 1 | .12 | 89 45 10.30 | 6.20 |
| 186 | ϵ Aurigæ | ... | 4 | .13 | 4 48 16.19 | 3.894* | 5 | .14 | 57 2 57.56 | 6.16* |
| 187 | Σ 622 | ... | 1 | .08 | 4 51 9.14 | 3.104 | 1 | .08 | 88 32 5.28 | 5.94 |
| 188 | ϵ Aurigæ | ... | ... | ... | 4 52 22 | ..... | 4 | .06 | 46 22 44.78 | 5.83 |
| 189 | Piazzi iv. 278 | 7.1 | 3 | .05 | 4 55 3.78 | 3.103 | 3 | .05 | 88 35 20.66 | 5.61 |
| 190 | B.A.C. 1564 | ... | 1 | .14 | 4 57 18.57 | 2.267 | 1 | .14 | 121 58 1.21 | 5.42 |
| 191 | Radcliffe 1377..... | 7.3 | ... | ... | 4 58 39 | ..... | 5 | .37 | 4 27 28.16 | 5.31 |
| 192 | m Tauri | ... | 1 | .99 | 4 59 31.84 | 3.502 | 1 | .99 | 71 31 16.58 | 5.23 |
| 193 | ϵ Leporis..... | ... | 4 | .11 | 4 59 47.36 | 2.536* | 3 | .08 | 112 33 9.89 | 5.14* |
| 194 | 105 Tauri | 6.6 | 2 | .05 | 4 59 54.83 | 3.580 | 2 | .05 | 68 28 30.61 | 5.19 |
| 195 | i Orionis..... | ... | 1 | .13 | 5 0 35.19 | 3.260 | 1 | .13 | 81 40 43.85 | 5.14 |
| 196 | B.A.C. 1594 | ... | 1 | .14 | 5 2 37.67 | 3.379 | ... | ... | 76 37 | ..... |
| 197 | ρ Orionis..... | 5.8 | 3 | .05 | 5 6 17.19 | 3.132 | 3 | .05 | 87 18 3.28 | 4.66 |
| 198 | Capella | ... | ... | ... | 5 6 48 | ..... | 2 | .09 | 44 8 30.91 | 4.18* |
| 199 | Rigel | ... | 9 | .35 | 5 8 5.98 | 2.880* | 9 | .35 | 98 21 32.17 | 4.48* |
| 200 | W.B. (2) V. 270-1... | 7.5 | 2 | .09 | 5 10 30.00 | 3.589 | 2 | .09 | 68 21 15.13 | 4.30 |
| 201 | 19 Aurigæ | ... | 1 | .14 | 5 11 10.99 | 3.946 | 1 | .14 | 56 11 8.14 | 4.24 |
| 202 | B.A.C. 1639 | ... | 3 | .42 | 5 11 19.24 | 3.546 | 3 | .42 | 70 0 32.33 | 4.23 |
| 203 | 21 Orionis | ... | 1 | .01 | 5 12 11.90 | 3.126 | 1 | .01 | 87 32 42.47 | 4.15 |
| 204 | Σ 688 (1st star).... | 8.0 | 2 | .10 | 5 13 2.53 | 2.819 | 2 | .10 | 100 53 21.18 | 4.08 |
| 205 | B.A.C. 1655 | 6.2 | 2 | .07 | 5 14 3.19 | 2.388 | 2 | .07 | 117 30 27.38 | 3.99 |
| 206 | B.A.C. 1656 | ... | 1 | .03 | 5 14 26.05 | 3.262 | 1 | .03 | 81 42 22.07 | 3.97 |
| 207 | Σ 697 (2nd star) ... | 8.0 | 1 | .05 | 5 15 49.50 | 3.445 | 1 | .05 | 74 5 22.70 | 3.84 |
| 208 | 111 Tauri | 6.0 | 1 | .06 | 5 16 36.34 | 3.479 | 1 | .06 | 72 44 38.17 | 3.77 |
| 209 | β Tauri | ... | 8 | .35 | 5 17 49.37 | 3.787* | 9 | .36 | 61 30 32.45 | 3.47* |
| 210 | 115 Tauri | ... | 1 | .99 | 5 19 21.10 | +3.495 | 1 | .99 | 72 9 21.84 | -3.54 |

No. 189. Piazzi iv. 278. Companion 7.7 mag.

No. 197. ρ Orionis. Companion 9.3 mag.No. 204. Σ 688. Companion 8.0 mag.No. 207. Σ 697. Companion 8.5 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | Pre- cession in N.P.D. |
|-----|---------------------|------|---------------------------|-----------------------------------|-------------------------------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|------------------------------|
| | | | | | h. m. s. | s. | | | ° ' " | " |
| 211 | Groombridge 944 ... | 6.5 | ... | ... | 5 19 22 | ..... | 7 | 0.37 | 4 52 54.26 | - 3.54 |
| 212 | B.A.C. 1699 | 7.3 | 1 | 0.11 | 5 19 47.71 | + 3.447 | 1 | .11 | 74 4 39.16 | 3.50 |
| 213 | B.A.C. 1709 | 6.7 | 2 | .06 | 5 21 9.89 | 3.803 | 2 | .06 | 60 55 24.20 | 3.38 |
| 214 | Piazzi v. 109 | 7.0 | 1 | .12 | 5 22 16.99 | 2.874 | 1 | .12 | 98 29 19.02 | 3.29 |
| 215 | B.A.C. 1711 | ... | 2 | .08 | 5 22 17.24 | 3.563 | 2 | .08 | 69 33 24.73 | 3.29 |
| 216 | A Orionis | 5.5 | 2 | .10 | 5 23 36.86 | 3.205 | 2 | .10 | 84 9 25.99 | 3.18 |
| 217 | 119 Tauri | ... | 1 | .14 | 5 24 21.58 | 3.513 | 1 | .14 | 71 30 29.61 | 3.11 |
| 218 | δ Orionis..... | ... | 4 | .16 | 5 25 9.67 | 3.064* | 3 | .08 | 90 24 3.40 | 3.00* |
| 219 | α Leporis | ... | 3 | .12 | 5 26 49.28 | 2.646* | 3 | .12 | 107 55 11.66 | 2.90* |
| 220 | B.A.C. 1751 | ... | ... | ... | 5 29 0 | ..... | 2 | .07 | 24 22 50.18 | 2.70 |
| 221 | ε Orionis..... | ... | 1 | .16 | 5 29 24.89 | 3.041* | 2 | .28 | 91 17 24.33 | 2.65* |
| 222 | ζ Tauri | ... | 1 | .15 | 5 29 38.28 | 3.581 | 1 | .15 | 68 56 31.45 | 2.65 |
| 223 | B.A.C. 1789 | ... | 1 | .09 | 5 32 50.66 | 2.986 | 1 | .09 | 93 38 29.95 | 2.37 |
| 224 | 126 Tauri | 6.3 | 1 | .03 | 5 33 33.09 | 3.463 | 1 | .03 | 73 32 18.70 | 2.31 |
| 225 | ζ Orionis..... | ... | 1 | .06 | 5 33 59.93 | 3.024 | 1 | .06 | 92 0 57.79 | 2.27 |
| 226 | α Columbae | ... | 2 | .10 | 5 34 47.87 | 2.178* | 2 | .10 | 124 8 51.85 | 2.20* |
| 227 | B.A.C. 1801 | 6.7 | 1 | .11 | 5 35 11.33 | 3.639 | 1 | .11 | 66 51 45.44 | 2.17 |
| 228 | b Orionis | 6.0 | 1 | .05 | 5 35 32.93 | 3.103 | 1 | .05 | 88 35 34.34 | 2.14 |
| 229 | B.A.C. 1811 | ... | 1 | .06 | 5 37 19.59 | 3.519 | 1 | .06 | 71 21 27.55 | 1.98 |
| 230 | B.A.C. 1816 | 7.0 | 1 | .10 | 5 37 57.54 | 3.162 | 1 | .10 | 86 3 3.89 | 1.93 |
| 231 | 133 Tauri | ... | 1 | .03 | 5 40 7.07 | 3.399 | 1 | .03 | 76 9 7.09 | 1.73 |
| 232 | κ Orionis..... | ... | 4 | .18 | 5 41 24.12 | 2.842 | 4 | .18 | 99 43 10.35 | 1.62 |
| 233 | B.A.C. 1853 | 7.2 | 2 | .06 | 5 43 10.87 | 3.413 | 2 | .06 | 75 35 52.76 | 1.47 |
| 234 | B.A.C. 1857 | 7.0 | 1 | .05 | 5 43 47.94 | 3.967 | 1 | .05 | 56 7 15.38 | 1.42 |
| 235 | B.A.C. 1860 | 5.7 | 2 | .09 | 5 44 17.73 | 2.504 | 2 | .09 | 113 0 51.11 | 1.37 |
| 236 | 56 Orionis | 6.0 | 1 | .06 | 5 45 29.01 | 3.113 | 1 | .06 | 88 10 49.51 | 1.27 |
| 237 | α Orionis | ... | 7 | .15 | 5 47 55.10 | 3.246* | 9 | .17 | 82 37 13.60 | 1.05* |
| 238 | B.A.C. 1893 | 7.0 | 1 | .03 | 5 49 6.00 | 3.294 | 1 | .03 | 80 30 46.36 | 0.95 |
| 239 | β Aurigæ | ... | ... | ... | 5 49 42 | ... | 2 | .07 | 45 4 12.30 | 0.90 |
| 240 | θ Aurigæ | ... | 2 | .12 | 5 50 34.96 | 4.084 | 6 | .12 | 52 48 1.53 | 0.83 |
| 241 | B.A.C. 1907 | ... | 2 | .14 | 5 51 20.88 | 3.374 | 2 | .14 | 77 12 26.41 | 0.75 |
| 242 | 60 Orionis | 6.0 | 1 | .09 | 5 51 56.12 | 3.083 | 1 | .09 | 89 27 42.51 | 0.71 |
| 243 | B.A.C. 1918 | ... | 1 | .13 | 5 52 35.20 | 3.768 | 1 | .13 | 62 26 17.48 | 0.65 |
| 244 | Groombridge 1004 .. | 6.5 | ... | ... | 5 52 54 | ... | 5 | .37 | 3 14 19.42 | 0.62 |
| 245 | 1 Geminorum .. | 5.8 | 3 | .08 | 5 55 58.51 | + 3.645 | 3 | .08 | 66 43 57.07 | - 0.35 |

No. 218. δ Orionis. Companion 7.4 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R. A. | Fraction of the Year for Mean. | Mean R. A. 1866, Jan. 1. | | | Pre-cession in R. A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | | | Pre-cession in N.P.D. |
|-----|-----------------------------------|------|-------------------------|--------------------------------|--------------------------------|----|-------|-------------------------|--------------------------|--------------------------------|---------------------------------|----|-------|--------------------------|
| | | | | | h. | m. | s. | | | | ° | ' | " | |
| 246 | Piazzi v. 317 | 8.0 | 1 | 0.05 | 5 | 57 | 29.60 | +3.441 | 1 | 0.05 | 74 | 32 | 45.09 | -0.22 |
| 247 | Σ 838 (2nd star) ... | ... | 3 | .12 | 5 | 58 | 14.09 | 3.091 | 3 | .12 | 89 | 7 | 38.71 | 0.15 |
| 248 | 17 Leporis | 5.0 | 1 | .14 | 5 | 59 | 0.34 | 2.675 | 1 | .14 | 106 | 28 | 40.01 | -0.09 |
| 249 | ν Orionis..... | ... | 3 | .11 | 5 | 59 | 55.21 | 3.426* | 5 | .11 | 75 | 13 | 5.09 | +0.01* |
| 250 | B.A.C. 1961 | ... | 1 | .09 | 6 | 0 | 35.39 | 2.807 | 1 | .09 | 101 | 9 | 37.93 | 0.05 |
| 251 | 6 Geminorum | 7.0 | 2 | .11 | 6 | 4 | 11.75 | 3.636 | 2 | .11 | 67 | 3 | 52.28 | 0.36 |
| 252 | f ¹ Orionis | ... | 1 | .06 | 6 | 4 | 19.64 | 3.458 | 1 | .06 | 73 | 50 | 31.89 | 0.38 |
| 253 | B.A.C. 1997 | 6.0 | 2 | .09 | 6 | 5 | 51.01 | 2.406 | 2 | .09 | 116 | 27 | 14.33 | 0.51 |
| 254 | η Geminorum..... | ... | 5 | .12 | 6 | 6 | 47.36 | 3.626 | 5 | .12 | 67 | 27 | 25.42 | 0.59 |
| 255 | B.A.C. 2005 | 7.0 | 1 | .10 | 6 | 6 | 59.98 | 3.456 | 1 | .10 | 73 | 55 | 41.88 | 0.61 |
| 256 | 2 Lyncis | ... | ... | ... | 6 | 7 | 48 | ..... | 4 | .12 | 30 | 56 | 43.34 | 0.69 |
| 257 | k ¹ Orionis | ... | 2 | .12 | 6 | 8 | 13.32 | 3.369 | 2 | .12 | 77 | 24 | 33.56 | 0.72 |
| 258 | B.A.C. 2021 | ... | 1 | .07 | 6 | 9 | 55.89 | 4.015 | 1 | .07 | 54 | 44 | 36.10 | 0.86 |
| 259 | 10 Geminorum | 7.0 | 1 | .06 | 6 | 10 | 44.61 | 3.656 | 1 | .06 | 66 | 20 | 53.40 | 0.94 |
| 260 | 11 Geminorum | ... | 1 | .13 | 6 | 11 | 9.95 | 3.652 | 1 | .13 | 66 | 28 | 51.63 | 0.97 |
| 261 | 6 Monocerotis..... | ... | 1 | .17 | 6 | 11 | 17.31 | 2.819 | 1 | .17 | 100 | 40 | 39.31 | 0.98 |
| 262 | μ Geminorum | ... | 5 | .11 | 6 | 14 | 51.23 | 3.632* | 6 | .09 | 67 | 25 | 13.11 | 1.43* |
| 263 | β Canis Majoris | ... | 5 | .13 | 6 | 16 | 47.98 | 2.640 | 5 | .13 | 107 | 53 | 28.80 | 1.47 |
| 264 | ν Geminorum | ... | 2 | .15 | 6 | 21 | 0.47 | 3.563 | 2 | .15 | 69 | 42 | 21.54 | 1.83 |
| 265 | Σ 921 (1st star)..... | 7.3 | 1 | .05 | 6 | 23 | 42.41 | 3.338 | 1 | .05 | 78 | 39 | 29.95 | 2.07 |
| 266 | 19 Geminorum | 6.8 | 2 | .09 | 6 | 23 | 54.96 | 3.452 | 2 | .09 | 74 | 0 | 20.19 | 2.09 |
| 267 | B.A.C. 2116 | 6.7 | 1 | .12 | 6 | 24 | 29.25 | 3.500 | 1 | .12 | 72 | 7 | 26.58 | 2.14 |
| 268 | B.A.C. 2118 | 7.4 | 1 | .16 | 6 | 24 | 48.09 | 3.188 | 1 | .16 | 84 | 57 | 53.86 | 2.17 |
| 269 | 22 Geminorum | ... | 1 | .09 | 6 | 26 | 44.89 | 3.542 | 1 | .06 | 70 | 28 | 14.53 | 2.33 |
| 270 | B.A.C. 2140 | 7.3 | 2 | .09 | 6 | 27 | 10.15 | 3.460 | 2 | .09 | 73 | 41 | 36.18 | 2.38 |
| 271 | γ Geminorum..... | ... | 5 | .12 | 6 | 29 | 58.20 | 3.466* | 6 | .10 | 73 | 29 | 21.64 | 2.56* |
| 272 | ν ¹ Canis Majoris..... | 7.0 | 1 | .05 | 6 | 30 | 30.86 | 2.626 | 1 | .05 | 108 | 33 | 5.02 | 2.66 |
| 273 | B.A.C. 2173 | 7.4 | 2 | .09 | 6 | 32 | 7.04 | 3.546 | 2 | .09 | 70 | 13 | 21.05 | 2.80 |
| 274 | B.A.C. 2184 | ... | 1 | .18 | 6 | 33 | 38.10 | 3.462 | 1 | .18 | 73 | 28 | 48.79 | 2.94 |
| 275 | B.A.C. 2189 | 6.2 | 2 | .14 | 6 | 34 | 11.88 | 3.085 | 2 | .14 | 89 | 22 | 55.00 | 2.98 |
| 276 | 28 Geminorum | ... | 2 | .14 | 6 | 36 | 15.97 | 3.806 | 2 | .14 | 60 | 53 | 49.12 | 3.16 |
| 277 | Cephei 51 (Hev)..... | ... | ... | ... | 6 | 36 | 40 | ..... | 4 | .41 | 2 | 45 | 23.69 | 3.29* |
| 278 | 57 Anrigæ S.P. | ... | 1 | .53 | 6 | 37 | 26.53 | 4.584 | 1 | .53 | 41 | 4 | 20.98 | 3.27 |
| 279 | ξ Geminorum | ... | 1 | .07 | 6 | 37 | 45.91 | 3.376 | 1 | .07 | 76 | 57 | 43.91 | 3.29 |
| 280 | O.A. (S.Z.) 5589 ... | ... | 1 | .11 | 6 | 38 | 34.48 | +2.526 | 1 | .11 | 112 | 26 | 21.84 | +3.36 |

No. 265. Σ 921. Companion 9.5 mag.

No. 272. ν¹ Canis Majoris. Companion 8.0 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | Pre- cession in N.P.D. |
|-----|-----------------------|------|---------------------------|-----------------------------------|-------------------------------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|------------------------------|
| | | | | | h. m. s. | s. | | | ° ' " | " |
| 281 | 16 Monocerotis | 6.0 | 2 | .13 | 6 39 13.97 | +3.273 | 2 | .13 | 81 16 24.64 | +3.41 |
| 282 | Sirius | ... | 14 | .40 | 6 39 14.48 | 2.645* | 15 | .41 | 106 32 4.07 | 4.64* |
| 283 | 10 Canis Majoris..... | ... | 1 | .09 | 6 39 22.40 | 2.281 | 1 | .09 | 120 56 3.29 | 3.43 |
| 284 | B.A.C. 2210 | ... | ... | ... | 6 40 28 | ..... | 2 | .14 | 12 51 35.10 | 3.52 |
| 285 | 11 Canis Majoris..... | 5.7 | 2 | .14 | 6 40 44.42 | 2.736 | 2 | .14 | 104 17 4.36 | 3.54 |
| 286 | 35 Geminorum | ... | 1 | .18 | 6 42 51.61 | 3.387 | 1 | .18 | 76 26 6.57 | 3.73 |
| 287 | B.A.C. 2251 | ... | 1 | .05 | 6 45 19.46 | 2.266 | 1 | .05 | 121 33 2.20 | 3.94 |
| 288 | 15 Lyncis | ... | ... | ... | 6 45 40 | ..... | 2 | .13 | 31 24 21.67 | 3.97 |
| 289 | e Geminorum | 6.0 | 2 | .11 | 6 47 5.09 | 3.381 | 2 | .11 | 76 39 16.24 | 4.09 |
| 290 | θ Canis Majoris | ... | 8 | .17 | 6 47 57.82 | 2.796 | 8 | .17 | 101 52 22.62 | 4.16 |
| 291 | 17 Canis Majoris..... | 6.4 | 1 | .16 | 6 49 15.57 | 2.589 | 1 | .16 | 110 14 8.57 | 4.28 |
| 292 | B.A.C. 2271 | ... | 1 | .11 | 6 49 54.74 | 3.497 | 1 | .11 | 71 55 25.66 | 4.33 |
| 293 | μ Canis Majoris..... | 6.0 | 2 | .11 | 6 49 58.17 | 2.749 | 2 | .11 | 103 52 20.93 | 4.34 |
| 294 | 40 Geminorum | 7.0 | 3 | .07 | 6 51 11.44 | 3.709 | 3 | .07 | 63 55 25.16 | 4.45 |
| 295 | 41 Geminorum | ... | 1 | .18 | 6 52 33.62 | 3.450 | 1 | .18 | 73 44 18.79 | 4.56 |
| 296 | ε Canis Majoris | ... | 1 | .21 | 6 53 21.62 | 2.358* | 1 | .21 | 118 47 27.41 | 4.64* |
| 297 | ζ Geminorum | ... | 1 | .15 | 6 56 9.57 | 3.562 | 1 | .15 | 69 14 10.43 | 4.87 |
| 298 | B.A.C. 2306 | 6.0 | 2 | .12 | 6 56 12.53 | 3.326 | 2 | .12 | 78 51 17.36 | 4.87 |
| 299 | 44 Geminorum | 6.5 | 1 | .14 | 6 57 14.44 | 3.616 | 1 | .14 | 67 9 54.77 | 4.96 |
| 300 | γ Canis Majoris | ... | 5 | .15 | 6 57 41.75 | 2.716* | 5 | .15 | 105 26 14.62 | 4.99* |
| 301 | W.B. (2) VI. 1846.... | ... | 1 | .11 | 7 0 39.86 | 3.449 | 1 | .11 | 73 39 22.81 | 5.25 |
| 302 | 63 Aurigæ | ... | ... | ... | 7 2 26 | ..... | 2 | .13 | 50 27 51.59 | 5.40 |
| 303 | Σ 1035 (1st star) ... | 8.5 | 1 | .12 | 7 3 58.31 | 3.603 | 1 | .12 | 67 30 4.45 | 5.52 |
| 304 | 48 Geminorum | ... | 1 | .08 | 7 4 17.82 | 3.652 | 1 | .08 | 65 39 1.01 | 5.55 |
| 305 | B.A.C. 2356 | ... | 1 | .10 | 7 4 42.45 | 3.202 | 1 | .10 | 84 7 32.49 | 5.59 |
| 306 | 51 Geminorum | 6.0 | 6 | .17 | 7 5 40.57 | 3.448 | 6 | .17 | 73 36 58.79 | 5.67 |
| 307 | 23 Monocerotis | 7.3 | 1 | .14 | 7 6 27.10 | 3.069 | 1 | .14 | 90 2 5.03 | 5.74 |
| 308 | 24 Monocerotis | 7.3? | 1 | .17 | 7 8 28.09 | 3.072 | 1 | .17 | 89 55 50.95 | 5.90 |
| 309 | B.A.C. 2387 | ... | 2 | .12 | 7 9 3.41 | 3.446 | 2 | .12 | 73 37 13.27 | 5.96 |
| 310 | λ Geminorum. | ... | 1 | .08 | 7 10 23.97 | 3.455 | 1 | .08 | 73 13 13.28 | 6.07 |
| 311 | δ Geminorum | ... | 3 | .23 | 7 12 7.06 | 3.592* | 3 | .23 | 67 46 25.28 | 6.23* |
| 312 | 56 Geminorum ... | 6.0 | 1 | .12 | 7 14 2.25 | 3.550 | 1 | .12 | 69 18 20.95 | 6.37 |
| 313 | W.B. (2) VII. 397 ... | 8.0 | 2 | .15 | 7 14 9.66 | 3.606 | 2 | .15 | 67 6 14.98 | 6.38 |
| 314 | B.A.C. 2433 | ... | 1 | .13 | 7 15 10.76 | 3.080 | 1 | .13 | 89 34 19.52 | 6.46 |
| 315 | B.A.C. 2432 | ... | 1 | .11 | 7 15 17.20 | +3.495 | 1 | .11 | 71 28 19.76 | +6.47 |

No. 303. Σ 1035. Companion 8.7 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | | | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | | | Pre- cession in N.P.D. |
|-----|----------------------------------|------|---------------------------|-----------------------------------|-------------------------------|----|-------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|----|-------|------------------------------|
| | | | | | h. | m. | s. | | | | s. | ° | ' | |
| 316 | B.A.C. 2437 | 6.5 | 1 | 0.09 | 7 | 15 | 51.01 | +2.944 | 1 | 0.09 | 95 | 43 | 45.46 | +6.51 |
| 317 | B.A.C. 2439 | ... | ... | ... | 7 | 16 | 54 | ..... | 4 | .17 | 21 | 15 | 56.53 | 6.60 |
| 318 | 1 Canis Minoris | ... | 1 | .12 | 7 | 17 | 31.30 | 3.337 | 1 | .12 | 78 | 4 | 16.26 | 6.65 |
| 319 | Groombridge 1119 ... | 7.0 | ... | ... | 7 | 17 | 49 | ..... | 3 | .25 | 0 | 59 | 15.96 | 6.68 |
| 320 | ε Canis Minoris | ... | 2 | .10 | 7 | 18 | 19.45 | 3.282 | 2 | .10 | 80 | 27 | 42.59 | 6.72 |
| 321 | β Canis Minoris | ... | 2 | .19 | 7 | 19 | 52.90 | 3.260 | 4 | .16 | 81 | 26 | 35.03 | 6.85 |
| 322 | η Canis Minoris | 6.0 | 2 | .11 | 7 | 20 | 49.57 | 3.229 | 2 | .11 | 82 | 47 | 13.62 | 6.93 |
| 323 | δ ¹ Geminorum | 6.3 | 1 | .14 | 7 | 20 | 59.28 | 3.749 | 1 | .14 | 61 | 36 | 29.52 | 6.94 |
| 324 | δ ² Geminorum | ... | 2 | .20 | 7 | 21 | 28.38 | 3.742 | 1 | .20 | 61 | 48 | 34.22 | 6.98 |
| 325 | B.A.C. 2472 | ... | 1 | .13 | 7 | 22 | 19.70 | 3.741 | 1 | .13 | 61 | 48 | 53.19 | 7.05 |
| 326 | 6 Canis Minoris | 6.0 | 1 | .09 | 7 | 22 | 20.17 | 3.343 | 1 | .09 | 77 | 43 | 6.89 | 7.05 |
| 327 | δ ¹ Canis Minoris ... | 6.0 | 1 | .12 | 7 | 25 | 8.09 | 3.118 | 1 | .12 | 87 | 48 | 13.53 | 7.28 |
| 328 | 67 Geminorum | 7.0 | 1 | .16 | 7 | 25 | 46.30 | 3.426 | 1 | .16 | 74 | 4 | 34.28 | 7.33 |
| 329 | 68 Geminorum | ... | 1 | .08 | 7 | 25 | 57.18 | 3.430 | 1 | .08 | 73 | 53 | 16.88 | 7.34 |
| 330 | Castor | ... | 4 | .36 | 7 | 26 | 2.81 | 3.842* | 3 | .28 | 57 | 49 | 13.53 | 7.43* |
| 331 | n ¹ Puppis | 6.5 | 1 | .09 | 7 | 28 | 38.83 | 2.541 | 1 | .09 | 113 | 10 | 57.98 | 7.57 |
| 332 | n ² Puppis | 7.0 | 1 | .12 | 7 | 28 | 39.45 | 2.541 | 1 | .12 | 113 | 11 | 3.49 | 7.57 |
| 333 | B.A.C. 2499 | 7.3 | 1 | .14 | 7 | 29 | 12.74 | 3.532 | 1 | .14 | 69 | 32 | 39.20 | 7.61 |
| 334 | B.A.C. 2503 | ... | 1 | .13 | 7 | 29 | 26.63 | 3.204 | 1 | .13 | 83 | 50 | 35.60 | 7.63 |
| 335 | p Puppis | 5.7 | 2 | .11 | 7 | 29 | 59.96 | 2.412 | 2 | .11 | 118 | 4 | 29.21 | 7.67 |
| 336 | 25 Monocerotis | ... | 1 | .20 | 7 | 30 | 36.97 | 2.988 | 1 | .20 | 93 | 48 | 49.02 | 7.73 |
| 337 | B.A.C. 2514 | 6.5 | 1 | .11 | 7 | 31 | 6.02 | 3.633 | 1 | .11 | 65 | 28 | 36.11 | 7.77 |
| 338 | Procyon | ... | 5 | .29 | 7 | 32 | 17.15 | 3.145* | 6 | .39 | 84 | 26 | 3.11 | 8.89* |
| 339 | Radcliffe 1979 S.P. ... | 8.3 | ... | ... | 7 | 33 | 16 | ..... | 2 | .62 | 3 | 15 | 2.45 | 7.94 |
| 340 | k ² Puppis | 6.0 | 1 | .16 | 7 | 33 | 20.50 | 2.459 | 1 | .16 | 116 | 30 | 3.27 | 7.94 |
| 341 | Piazzi vii. 182 | 7.5 | 1 | .19 | 7 | 35 | 52.84 | 3.629 | 1 | .19 | 65 | 26 | 24.45 | 8.15 |
| 342 | κ Geminorum | ... | ... | ... | 7 | 36 | 21 | ..... | 4 | .16 | 65 | 16 | 58.33 | 8.19 |
| 343 | Lalande 15007 | 7.5 | 1 | .14 | 7 | 36 | 21.26 | 3.528 | 1 | .14 | 69 | 28 | 39.10 | 8.19 |
| 344 | Pollux | ... | 2 | .48 | 7 | 37 | 6.69 | 3.682* | 5 | .36 | 61 | 39 | 12.21 | 8.31* |
| 345 | 1 Puppis | ... | 1 | .09 | 7 | 38 | 7.70 | 2.422 | 1 | .09 | 118 | 5 | 35.97 | 8.33 |
| 346 | π Geminorum | ... | 1 | .13 | 7 | 38 | 51.99 | 3.882 | 1 | .13 | 56 | 15 | 29.86 | 8.38 |
| 347 | B.A.C. 2565 | 6.3 | 2 | .15 | 7 | 38 | 56.19 | 2.521 | 2 | .15 | 114 | 21 | 10.78 | 8.39 |
| 348 | 5 Puppis | 6.0 | 1 | .12 | 7 | 41 | 40.09 | 2.817 | 1 | .12 | 101 | 51 | 56.76 | 8.61 |
| 349 | B.A.C. 2592 | 6.3 | 1 | .11 | 7 | 42 | 25.36 | 3.871 | 1 | .11 | 56 | 25 | 52.61 | 8.67 |
| 350 | B.A.C. 2600 | ... | 1 | .09 | 7 | 43 | 27.86 | +2.340 | 1 | .09 | 121 | 17 | 2.69 | +8.75 |

No. 340. k² Puppis. Companion 6.3 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | | | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | | | Pre- cession in N.P.D. |
|-----|-----------------------------|------|---------------------------|-----------------------------------|-------------------------------|----|-------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|----|-------|------------------------------|
| | | | | | h. | m. | s. | | | | " | " | " | |
| 351 | ξ Argûs | ... | 1 | 0'12 | 7 | 43 | 39'51 | +2'522 | 1 | 0'12 | 114 | 31 | 30'08 | +8'76 |
| 352 | 8 Puppis | 6'5 | 3 | '15 | 7 | 45 | 24'93 | 2'806 | 3 | '15 | 102 | 28 | 42'21 | 8'90 |
| 353 | 10 Puppis | 6'0 | 1 | '16 | 7 | 46 | 8'99 | 2'762 | 1 | '16 | 104 | 30 | 13'84 | 8'96 |
| 354 | * | 7'9 | 3 | '13 | 7 | 48 | 22'65 | 3'533 | 3 | '13 | 68 | 49 | 51'10 | 9'13 |
| 355 | W.B. (2) VII. 1371 | 7'3 | 1 | '12 | 7 | 49 | 13'25 | 3'534 | 1 | '12 | 68 | 40 | 46'72 | 9'20 |
| 356 | W.B. (2) VII. 1408 | 8'3 | 1 | '19 | 7 | 50 | 54'56 | 3'777 | 1 | '19 | 59 | 11 | 26'03 | 9'32 |
| 357 | 14 Canis Minoris | ... | 1 | '13 | 7 | 51 | 23'74 | 3'124 | 1 | '13 | 87 | 2 | 12'44 | 9'36 |
| 358 | W.B. (2) VII. 1465 | 7'4 | 1 | '12 | 7 | 53 | 28'79 | 3'602 | 1 | '12 | 65 | 43 | 14'58 | 9'53 |
| 359 | Piazzi vii. 280 | 7'7 | 1 | '11 | 7 | 54 | 16'83 | 3'500 | 1 | '11 | 69 | 53 | 39'72 | 9'59 |
| 360 | 6 Cancri | 5'9 | 4 | '15 | 7 | 55 | 17'05 | 3'695* | 4 | '15 | 61 | 49 | 56'92 | 9'74* |
| 361 | W.B. (2) VII. 1527 | 7'5 | 1 | '14 | 7 | 55 | 44'22 | 3'514 | 1 | '14 | 69 | 17 | 15'76 | 9'70 |
| 362 | B.A.C. 2679 | ... | 1 | '20 | 7 | 55 | 54'95 | 3'284 | 1 | '20 | 79 | 41 | 3'89 | 9'72 |
| 363 | B.A.C. 2683 | 6'7 | 2 | '13 | 7 | 57 | 0'49 | 3'477 | 2 | '13 | 70 | 46 | 53'95 | 9'80 |
| 364 | Σ 1183 (2nd star) | ... | 1 | '16 | 8 | 0 | 0'13 | 2'891 | 1 | '16 | 98 | 51 | 42'33 | 10'03 |
| 365 | W.B. (2) VII. 1646 | 7'7 | 1 | '12 | 8 | 0 | 14'54 | 3'634 | 1 | '12 | 64 | 3 | 41'05 | 10'05 |
| 366 | 15 Argûs | ... | 5 | '16 | 8 | 1 | 50'26 | 2'555* | 5 | '05 | 113 | 55 | 9'85 | 10'10* |
| 367 | B.A.C. 2731 | ... | 1 | '11 | 8 | 2 | 21'93 | 3'431 | 1 | '11 | 72 | 35 | 30'71 | 10'21 |
| 368 | B.A.C. 2739 | ... | 1 | '12 | 8 | 3 | 20'80 | 2'745 | 1 | '12 | 105 | 51 | 26'30 | 10'29 |
| 369 | B.A.C. 2737 | 7'0 | 1 | '20 | 8 | 3 | 27'05 | 3'378 | 1 | '20 | 74 | 58 | 34'74 | 10'29 |
| 370 | Σ 1198 (2nd star) | ... | 1 | '16 | 8 | 4 | 20'89 | 3'104 | 1 | '16 | 88 | 20 | 12'82 | 10'35 |
| 371 | ζ ¹ Cancri | ... | 1 | '15 | 8 | 4 | 31'46 | 3'444 | 1 | '15 | 71 | 57 | 3'36 | 10'37 |
| 372 | W.B. (2) VIII. 81 | ... | 1 | '13 | 8 | 5 | 41'66 | 3'683 | 1 | '13 | 61 | 49 | 12'98 | 10'45 |
| 373 | B.A.C. 2761 | 6'5 | 2 | '16 | 8 | 6 | 54'00 | 3'342 | 2 | '16 | 76 | 32 | 52'87 | 10'55 |
| 374 | W.B. (2) VIII. 132 | 8'0 | 1 | '12 | 8 | 7 | 46'18 | 3'893 | 1 | '12 | 54 | 2 | 29'08 | 10'62 |
| 375 | β Cancri | ... | 1 | '16 | 8 | 9 | 14'76 | 3'262 | 1 | '16 | 80 | 24 | 13'42 | 10'72 |
| 376 | * | 8'9 | 1 | '12 | 8 | 10 | 3'72 | 3'487 | 1 | '12 | 69 | 45 | 8'78 | 10'78 |
| 377 | W.B. (2) VIII. 218 | 7'1 | 1 | '12 | 8 | 11 | 10'18 | 3'586 | 2 | '12 | 65 | 24 | 36'39 | 10'87 |
| 378 | B.A.C. 2791 | ... | 1 | '13 | 8 | 12 | 47'06 | 3'156 | 1 | '13 | 85 | 38 | 0'40 | 10'98 |
| 379 | Lalande 16350-1-2 | 7'3 | 1 | '16 | 8 | 14 | 17'64 | 3'486 | 1 | '16 | 69 | 36 | 58'17 | 11'09 |
| 380 | d ¹ Cancri | 6'5 | 3 | '15 | 8 | 15 | 41'33 | 3'448 | 3 | '15 | 71 | 14 | 21'53 | 11'20 |
| 381 | Groombridge 1418 | 7'5 | ... | ... | 8 | 15 | 53 | ... | 4 | '32 | 4 | 28 | 54'21 | 11'21 |
| 382 | 21 Cancri | 7'0 | 1 | '12 | 8 | 16 | 35'15 | 3'287 | 1 | '12 | 78 | 56 | 18'42 | 11'25 |
| 383 | W.B. (2) VIII. 364 | 7'4 | 1 | '19 | 8 | 16 | 58'12 | 3'572 | 1 | '19 | 65 | 37 | 32'53 | 11'29 |
| 384 | Lalande 16452 | 7'7 | 2 | '14 | 8 | 17 | 3'01 | +3'486 | 2 | '14 | 69 | 24 | 57'47 | 11'30 |
| 385 | Radelhoff 2129 S.P. | ... | ... | ... | 8 | 17 | 53 | ... | 1 | '61 | 4 | 20 | 24'64 | +11'35 |

| No. | Name of Star | Mag. | Number of Obs. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | Pre-cession in R.A. | Number of Obs. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | Pre-cession in N.P.D. |
|-----|---------------------------|------|----------------|--------------------------------|-------------------------|---------------------|----------------|--------------------------------|---------------------------|-----------------------|
| | | | | | h. m. s. | s. | | | ° ' " | " |
| 386 | ν^1 Cancri | 7.7 | 1 | 0.12 | 8 18 41.33 | +3.582 | 1 | 0.12 | 65 1 40.91 | +11.48 |
| 387 | W.B. (2) VIII. 523 ... | ... | 1 | .13 | 8 23 19.18 | 3.454 | 1 | .13 | 70 35 4.01 | 11.74 |
| 388 | B.A.C. 2854 | 7.0 | 2 | .13 | 8 23 59.86 | 3.453 | 2 | .13 | 70 33 45.56 | 11.79 |
| 389 | η Cancri | 6.0 | 3 | .14 | 8 24 57.39 | 3.479* | 3 | .14 | 69 6 20.99 | 11.91* |
| 390 | W.B. (2) VIII. 574 | 7.6 | 2 | .14 | 8 25 12.24 | 3.374 | 2 | .14 | 74 16 23.90 | 11.88 |
| 391 | B.A.C. 2872 | 6.5 | 1 | .19 | 8 26 19.47 | 3.332 | 1 | .19 | 76 17 10.62 | 11.95 |
| 392 | ϵ^1 Cancri | 7.0 | 2 | .14 | 8 29 49.64 | 3.260 | 2 | .14 | 79 52 48.26 | 12.20 |
| 393 | ϵ^2 Cancri | ... | 1 | .17 | 8 30 49.63 | 3.258 | 1 | .16 | 79 57 33.05 | 12.27 |
| 394 | B.A.C. 2925 | ... | 1 | .14 | 8 33 14.98 | 3.454 | 1 | .14 | 69 56 47.07 | 12.43 |
| 395 | γ Cancri | ... | ... | ... | 8 35 32 | ..... | 1 | .26 | 68 3 6.43 | 12.59 |
| 396 | Λ^1 Cancri | 6.4 | 1 | .19 | 8 35 49.02 | 3.314 | 1 | .19 | 76 50 25.92 | 12.61 |
| 397 | ι Hydræ | ... | 1 | .16 | 8 37 55.32 | 3.182 | 1 | .16 | 83 50 8.92 | 12.75 |
| 398 | ϵ Hydræ | ... | 3 | .16 | 8 39 40.69 | 3.184* | 3 | .16 | 83 5 28.65 | 12.91* |
| 399 | B.A.C. 2990 | ... | 1 | .13 | 8 43 4.85 | 3.410 | 1 | .13 | 71 30 0.46 | 13.10 |
| 400 | ι Hydræ | ... | 1 | .26 | 8 44 59.18 | 2.953 | 1 | .26 | 96 40 37.16 | 13.22 |
| 401 | Radcliffe 2210 S.P.... | 8.8 | ... | ... | 8 45 16 | ..... | 1 | .71 | 4 59 29.83 | 13.25 |
| 402 | B.A.C. 3019 | 8.0 | 1 | .16 | 8 46 17.47 | 3.337 | 1 | .16 | 75 5 10.62 | 13.31 |
| 403 | Radcliffe 2218 | 6.5 | ... | ... | 8 46 51 | ..... | 3 | .63 | 5 17 18.81 | 13.34 |
| 404 | B.A.C. 3022 | ... | 1 | .18 | 8 47 1.52 | 3.333 | 1 | .18 | 75 14 58.82 | 13.36 |
| 405 | W.B. (2) VIII. 1160 | 7.4 | 1 | .19 | 8 47 29.89 | 3.577 | 1 | .19 | 63 4 56.63 | 13.38 |
| 406 | α Cancri | ... | 2 | .18 | 8 51 9.27 | 3.286 | 2 | .18 | 77 37 31.05 | 13.63 |
| 407 | B.A.C. 3058 | 7.5 | 1 | .16 | 8 51 36.56 | 3.402 | 1 | .16 | 71 20 43.96 | 13.65 |
| 408 | B.A.C. 3093 | 7.8 | 1 | .16 | 8 57 1.23 | 3.520 | 1 | .16 | 64 51 50.02 | 14.00 |
| 409 | κ Cancri | ... | 2 | .23 | 9 0 29.13 | 3.257 | 2 | .23 | 78 47 37.78 | 14.21 |
| 410 | W.B. (2) IX. 71-2... | ... | 1 | .16 | 9 5 7.29 | 3.734 | 1 | .16 | 54 20 41.98 | 14.50 |
| 411 | W.B. (1) IX. 75..... | 7.7 | 2 | .18 | 9 5 13.90 | 2.967 | 2 | .18 | 96 25 57.28 | 14.50 |
| 412 | Radcliffe 2273 S.P.... | 8.6 | ... | ... | 9 5 14 | ..... | 1 | .73 | 2 33 30.39 | 14.50 |
| 413 | δ Hydræ | 6.3 | 1 | .19 | 9 5 48.86 | 2.964 | 1 | .19 | 96 33 42.61 | 14.54 |
| 414 | B.A.C. 3138 | 6.5 | 1 | .16 | 9 5 57.67 | 3.439 | 1 | .16 | 68 10 1.00 | 14.55 |
| 415 | π^2 Cancri | ... | 1 | .28 | 9 7 49.99 | 3.324 | 1 | .28 | 74 30 16.48 | 14.65 |
| 416 | β Lyncis | ... | ... | ... | 9 10 30 | ..... | 2 | .20 | 52 37 57.10 | 14.81 |
| 417 | δ Cancri | ... | 2 | .23 | 9 11 29.92 | 3.356* | 2 | .23 | 71 43 38.39 | 15.04* |
| 418 | W.B. (2) IX. 287 ... | 7.7 | 1 | .16 | 9 14 52.64 | 3.508 | 1 | .16 | 63 40 17.82 | 15.07 |
| 419 | Piazzi ix. 65 | 7.5 | 1 | .19 | 9 16 16.91 | 3.162 | 1 | .19 | 85 55 39.84 | 15.15 |
| 420 | B.A.C. 3202 | 7.0 | 2 | .18 | 9 16 21.57 | +3.198 | 2 | .18 | 81 42 46.69 | +15.15 |

No. 386. ν^1 Cancri. Companion 8.3 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | | | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | | | Pre- cession in N.P.D. |
|-----|--------------------------|------|---------------------------|-----------------------------------|-------------------------------|----|-------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|----|-------|------------------------------|
| | | | | | h. | m. | s. | | | | " | " | " | |
| 421 | α Hydræ | ... | 2 | 0'24 | 9 | 21 | 0'21 | +2'949* | 2 | 0'24 | 98 | 4 | 44'94 | +15'39* |
| 422 | B.A.C. 3240 | 7'0 | 1 | '19 | 9 | 22 | 36'93 | 3'047 | 1 | '19 | 91 | 37 | 15'91 | 15'51 |
| 423 | ξ Leonis | ... | 1 | '26 | 9 | 24 | 43'21 | 3'247 | 1 | '26 | 78 | 6 | 29'29 | 15'63 |
| 424 | B.A.C. 3255 | ... | 1 | '16 | 9 | 25 | 27'29 | 3'532 | 1 | '16 | 61 | 2 | 26'08 | 15'66 |
| 425 | B.A.C. 3258 | 7'0 | 1 | '20 | 9 | 25 | 45'70 | 3'107 | 1 | '20 | 87 | 32 | 37'31 | 15'69 |
| 426 | 8 Leonis | ... | 1 | '19 | 9 | 29 | 38'61 | 3'321 | 1 | '19 | 72 | 57 | 47'22 | 15'89 |
| 427 | B.A.C. 3292 | ... | 1 | '16 | 9 | 31 | 23'18 | 3'379 | 1 | '16 | 69 | 5 | 59'85 | 15'99 |
| 428 | B.A.C. 3296 | ... | 1 | '28 | 9 | 31 | 24'07 | 2'575 | 1 | '28 | 121 | 34 | 37'04 | 15'99 |
| 429 | θ Leonis | ... | 1 | '20 | 9 | 33 | 59'93 | 3'218 | 1 | '20 | 79 | 29 | 57'76 | 16'12 |
| 430 | ϵ Leonis | ... | 1 | '26 | 9 | 38 | 14'41 | 3'420* | 1 | '26 | 65 | 36 | 37'03 | 16'36* |
| 431 | B.A.C. 3333 | 7'8 | 1 | '20 | 9 | 38 | 43'13 | 3'369 | 1 | '20 | 68 | 53 | 41'35 | 16'37 |
| 432 | B.A.C. 3340 | ... | 1 | '19 | 9 | 39 | 28'54 | 2'634 | 1 | '19 | 119 | 35 | 10'30 | 16'40 |
| 433 | B.A.C. 3356 | 7'7? | 1 | '19 | 9 | 42 | 39'58 | 3'227 | 1 | '19 | 78 | 15 | 5'12 | 16'56 |
| 434 | 5 Sextantis | ... | 1 | '29 | 9 | 44 | 1'48 | 2'982 | 1 | '29 | 96 | 45 | 20'62 | 16'63 |
| 435 | 6 Sextantis | ... | 1 | '20 | 9 | 44 | 28'95 | 3'023 | 1 | '20 | 93 | 36 | 59'42 | 16'65 |
| 436 | μ Leonis | ... | 1 | '28 | 9 | 45 | 8'26 | 3'443 | 1 | '28 | 63 | 21 | 50'62 | 16'68 |
| 437 | Radcliffe 2404 S.P. | 6'6 | ... | ... | 9 | 46 | 40 | ..... | 2 | '76 | 5 | 26 | 21'20 | 16'76 |
| 438 | π Leonis | ... | 3 | '26 | 9 | 53 | 7'81 | 3'177* | 4 | '26 | 81 | 18 | 49'38 | 17'09* |
| 439 | B.A.C. 3420 | ... | 1 | '20 | 9 | 54 | 17'63 | 3'509 | 1 | '20 | 57 | 49 | 24'88 | 17'11 |
| 440 | B.A.C. 3439 | ... | 1 | '31 | 9 | 57 | 55'11 | 3'558 | 1 | '31 | 54 | 20 | 49'26 | 17'27 |
| 441 | Regulus | ... | 3 | '29 | 10 | 1 | 13'97 | 3'203* | 3 | '29 | 77 | 22 | 43'79 | 17'41* |
| 442 | B.A.C. 3460 | ... | 1 | '28 | 10 | 1 | 46'88 | 3'300 | 1 | '28 | 70 | 48 | 42'83 | 17'45 |
| 443 | 17 Sextantis | ... | 1 | '28 | 10 | 3 | 27'99 | 2'982 | 1 | '28 | 97 | 45 | 2'58 | 17'52 |
| 444 | W.B. (2) X. 90-1 | ... | 1 | '31 | 10 | 5 | 32'69 | 3'472 | 1 | '31 | 57 | 57 | 36'92 | 17'61 |
| 445 | Groombridge 1620 | 5'6 | ... | ... | 10 | 9 | 41 | ..... | 3 | '44 | 5 | 4 | 13'05 | 17'78 |
| 446 | W.B. (2) X. 220 | ... | 1 | '20 | 10 | 11 | 44'84 | 3'355 | 1 | '20 | 64 | 57 | 53'24 | 17'86 |
| 447 | γ^1 Leonis | ... | 2 | '35 | 10 | 12 | 34'92 | 3'317* | 3 | '32 | 69 | 28 | 54'78 | 18'04* |
| 448 | 23 Sextantis | ... | 1 | '29 | 10 | 14 | 6'78 | 3'102 | 1 | '29 | 87 | 2 | 12'31 | 17'95 |
| 449 | μ Hydræ | ... | 2 | '29 | 10 | 19 | 36'62 | 2'906 | 1 | '29 | 106 | 9 | 10'00 | 18'16 |
| 450 | 45 Leonis | ... | 2 | '31 | 10 | 20 | 34'40 | 3'174 | 2 | '31 | 79 | 33 | 19'30 | 18'20 |
| 451 | B.A.C. 3592 | ... | 1 | '29 | 10 | 22 | 49'61 | 3'092 | 1 | '29 | 87 | 49 | 9'16 | 18'28 |
| 452 | ρ Leonis | ... | 3 | '31 | 10 | 25 | 45'23 | 3'166* | 3 | '31 | 80 | 0 | 15'62 | 18'41* |
| 453 | 36 Leonis Minoris | ... | 1 | '31 | 10 | 30 | 15'82 | 3'424 | 1 | '31 | 55 | 13 | 39'36 | 18'54 |
| 454 | B.A.C. 3638 | ... | 1 | '23 | 10 | 30 | 56'64 | 2'816 | 1 | '23 | 116 | 43 | 5'59 | 18'56 |
| 455 | 34 Sextantis | ... | 4 | '30 | 10 | 35 | 42'22 | +3'107 | 5 | '30 | 85 | 43 | 2'26 | +18'71 |

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | Pre- cession in N.P.D. |
|-----|------------------------------|------|---------------------------|-----------------------------------|-------------------------------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|------------------------------|
| | | | | | h. m. s. | s. | | | ° ' " | " |
| 456 | B.A.C. 3687 | 7.8 | 2 | 0.29 | 10 38 33.73 | +3.138 | 2 | 0.29 | 81 46 53.87 | +18.80 |
| 457 | ι Leonis | ... | 1 | .31 | 10 42 12.63 | 3.158* | 2 | .33 | 78 44 47.17 | 18.93* |
| 458 | B.A.C. 3720 | ... | 2 | .26 | 10 44 1.45 | 3.103 | 2 | .26 | 85 41 59.34 | 18.96 |
| 459 | δ^2 Hydræ | ... | 1 | .29 | 10 44 33.02 | 2.934 | 1 | .29 | 107 37 20.47 | 18.98 |
| 460 | 54 Leonis | 6.0 | 2 | .30 | 10 48 21.07 | 3.267 | 2 | .30 | 64 32 10.72 | 19.08 |
| 461 | 56 Leonis | 6.6 | 1 | .28 | 10 49 4.14 | 3.120 | 1 | .28 | 83 5 59.58 | 19.10 |
| 462 | W.B. (2) X. 995..... | ... | 1 | .31 | 10 50 6.43 | 3.232 | 1 | .31 | 68 8 36.77 | 19.13 |
| 463 | δ Leonis | ... | 3 | .33 | 10 53 38.35 | 3.100 | 3 | .33 | 85 39 47.86 | 19.22 |
| 464 | B.A.C. 3786 | ... | 1 | .23 | 10 57 28.31 | 3.068 | 1 | .23 | 90 33 21.65 | 19.31 |
| 465 | χ Leonis..... | ... | 2 | .35 | 10 58 6.24 | 3.098* | 2 | .35 | 81 56 24.08 | 19.41* |
| 466 | 52 Leonis Minoris ... | ... | 1 | .29 | 10 59 52.44 | 3.242 | 1 | .29 | 63 44 20.00 | 19.37 |
| 467 | 64 Leonis | ... | 1 | .28 | 11 0 29.23 | 3.224 | 1 | .28 | 65 57 9.68 | 19.38 |
| 468 | ρ^5 Leonis..... | 6.0 | 2 | .31 | 11 6 54.07 | 3.074 | 2 | .31 | 89 20 26.70 | 19.52 |
| 469 | δ Leonis | ... | 5 | .31 | 11 6 58.68 | 3.203* | 5 | .31 | 68 44 32.58 | 19.67* |
| 470 | δ Crateris | ... | 3 | .30 | 11 12 38.57 | 2.995* | 3 | .30 | 104 3 13.11 | 19.45* |
| 471 | σ Leonis..... | ... | 2 | .31 | 11 14 13.63 | 3.102 | 2 | .31 | 83 14 11.49 | 19.66 |
| 472 | γ Crateris | ... | 2 | .32 | 11 18 11.41 | 2.997 | 2 | .32 | 106 56 52.19 | 19.72 |
| 473 | τ Leonis | ... | 2 | .33 | 11 21 2.68 | 3.085 | 2 | .33 | 86 24 19.65 | 19.77 |
| 474 | B.A.C. 3901 | 6.8 | 1 | .28 | 11 21 2.90 | 3.067 | 1 | .28 | 90 57 45.72 | 19.77 |
| 475 | Radcliffe 2684 S.P.... | 7.4 | ... | ... | 11 21 8 | ..... | 88 | .88 | 4 33 19.12 | 19.77 |
| 476 | ϵ Leonis | ... | 2 | .39 | 11 23 28.18 | 3.062 | 2 | .39 | 92 15 50.41 | 19.80 |
| 477 | Lalande 21941 | 7.5 | 2 | .32 | 11 26 29.23 | 3.144 | 2 | .32 | 69 34 47.51 | 19.84 |
| 478 | 90 Leonis | 7.5 | 1 | .28 | 11 27 43.95 | 3.130 | 1 | .28 | 72 27 45.90 | 19.86 |
| 479 | ν Leonis | ... | 5 | .34 | 11 30 5.30 | 3.069* | 5 | .34 | 90 5 1.94 | 19.86* |
| 480 | 92 Leonis | 6.3 | 3 | .33 | 11 33 48.87 | 3.133 | 3 | .33 | 67 54 9.97 | 19.93 |
| 481 | W.B. (2) XI. 746 ... | ... | 1 | .31 | 11 38 23.96 | 3.119 | 1 | .31 | 69 21 54.71 | 19.97 |
| 482 | B.A.C. 3994 | ... | 1 | .29 | 11 41 59.36 | 3.019 | 1 | .29 | 116 0 15.11 | 19.99 |
| 483 | β Leonis..... | ... | 6 | .34 | 11 42 13.37 | 3.065* | 6 | .34 | 74 40 43.36 | 20.10* |
| 484 | β Virginis | ... | 1 | .31 | 11 43 42.88 | 3.075 | 1 | .31 | 87 28 47.67 | 20.00 |
| 485 | B.A.C. 4003 | 7.3 | 2 | .31 | 11 43 51.33 | 3.024 | 2 | .31 | 116 31 57.84 | 20.00 |
| 486 | Σ 1575 (2nd star) ... | 7.6 | 1 | .34 | 11 45 4.61 | 3.085 | 1 | .34 | 80 25 21.39 | 20.01 |
| 487 | θ Leonis | 6.6 | 1 | .31 | 11 48 47.30 | 3.089 | 1 | .31 | 73 36 27.09 | 20.03 |
| 488 | π Virginis | 6.0 | 6 | .32 | 11 54 0.29 | 3.075 | 7 | .33 | 82 38 16.51 | 20.05 |
| 489 | 2 Comæ | ... | 1 | .33 | 11 57 24.59 | 3.077 | 1 | .33 | 67 47 38.57 | 20.05 |
| 490 | Groombridge 1850.... | ... | 2 | .30 | 11 57 56.28 | +3.255 | 2 | .30 | 3 40 12.98 | +20.05 |

No. 460. 54 Leonis. Companion 7.4 mag. No. 478. 90 Leonis. Companion 8.8 mag.
 No. 486. Σ 1575. Companion 8.0 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | | | Pre- cession in R. A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | | | Pre- cession in N.P.D. |
|-----|-------------------------|------|---------------------------|-----------------------------------|-------------------------------|----|-------|-----------------------------|-----------------------------|-----------------------------------|---------------------------------|----|-------|------------------------------|
| | | | | | h. | m. | s. | | | | ° | ' | " | |
| 491 | Groombridge 1852 | ... | ... | ... | 11 | 58 | 23 | ..... | 2 | 0.28 | 12 | 20 | 42.83 | +20.06 |
| 492 | W.B. (2) XI. 1159 | ... | 1 | 0.31 | 11 | 59 | 10.09 | +3.074 | 1 | .31 | 66 | 2 | 57.17 | 20.06 |
| 493 | 10 Virginis | 6.4 | 2 | .31 | 12 | 2 | 49.31 | 3.070 | 2 | .31 | 87 | 20 | 57.19 | 20.05 |
| 494 | ε Corvi | ... | 1 | .35 | 12 | 3 | 14.26 | 3.075* | 1 | .35 | 111 | 52 | 24.25 | 20.05* |
| 495 | 12 Virginis | ... | 1 | .31 | 12 | 6 | 36.62 | 3.063 | 1 | .31 | 78 | 59 | 28.67 | 20.05 |
| 496 | γ Corvi | ... | 2 | .32 | 12 | 8 | 55.03 | 3.087 | 2 | .32 | 106 | 47 | 50.99 | 20.04 |
| 497 | Piazzi xii. 33 | 7.5 | 1 | .34 | 12 | 11 | 17.19 | 3.067 | 1 | .34 | 93 | 12 | 15.91 | 20.03 |
| 498 | 13 Virginis | 7.0? | 1 | .31 | 12 | 11 | 48.00 | 3.071 | 1 | .31 | 90 | 2 | 30.22 | 20.03 |
| 499 | 8 Comæ | ... | ... | ... | 12 | 12 | 33 | ..... | 2 | .28 | 66 | 13 | 15.42 | 20.03 |
| 500 | Groomb. 1871 S.P. | 6.7 | ... | ... | 12 | 12 | 57 | ..... | 1 | .91 | 2 | 49 | 9.08 | 20.02 |
| 501 | η Virginis | ... | 3 | .38 | 12 | 13 | 3.08 | 3.065 | 4 | .38 | 89 | 55 | 17.91 | 20.06* |
| 502 | W.B. (2) XII. 409 | ... | 1 | .35 | 12 | 19 | 46.06 | 2.982 | 1 | .35 | 52 | 8 | 37.90 | 19.98 |
| 503 | δ Corvi | ... | 5 | .35 | 12 | 22 | 56.02 | 3.109 | 5 | .35 | 105 | 46 | 7.00 | 19.96 |
| 504 | 4 Draconis | ... | ... | ... | 12 | 24 | 13 | ..... | 2 | .29 | 20 | 3 | 22.92 | 19.94 |
| 505 | 21 Comæ | ... | 1 | .33 | 12 | 24 | 19.02 | 3.004 | 1 | .33 | 64 | 41 | 28.85 | 19.94 |
| 506 | 20 Virginis | ... | 1 | .33 | 12 | 26 | 15.91 | 3.041 | 1 | .33 | 78 | 57 | 50.44 | 19.92 |
| 507 | β Corvi | ... | 2 | .36 | 12 | 27 | 21.26 | 3.131* | 2 | .36 | 112 | 39 | 17.43 | 19.98* |
| 508 | W.B. (2) XII. 628-9 | 7.7 | 1 | .28 | 12 | 30 | 6.86 | 3.004 | 1 | .28 | 69 | 1 | 30.23 | 19.89 |
| 509 | B.A.C. 4254 | 6.7 | 1 | .31 | 12 | 31 | 32.39 | 3.062 | 1 | .31 | 87 | 24 | 25.13 | 19.87 |
| 510 | 26 Comæ | 7.0 | 1 | .34 | 12 | 32 | 27.25 | 2.995 | 3 | .32 | 68 | 11 | 59.28 | 19.85 |
| 511 | 27 Virginis | ... | 1 | .30 | 12 | 34 | 49.34 | 3.030 | 1 | .30 | 78 | 50 | 15.20 | 19.83 |
| 512 | γ ¹ Virginis | ... | 2 | .39 | 12 | 34 | 52.21 | 3.037* | 2 | .39 | 90 | 42 | 46.02 | 19.87* |
| 513 | Lalande 23728 | 8.2 | 1 | .28 | 12 | 36 | 27.34 | 2.972 | 1 | .28 | 64 | 57 | 53.95 | 19.80 |
| 514 | Groomb. 1923 S.P. | 7.6 | ... | ... | 12 | 37 | 23 | ..... | 3 | .91 | 5 | 37 | 11.89 | 19.79 |
| 515 | 35 Virginis | 7.0 | 9 | .34 | 12 | 41 | 2.06 | 3.053 | 9 | .34 | 85 | 41 | 41.08 | 19.74 |
| 516 | 7 Draconis | ... | ... | ... | 12 | 42 | 8 | ..... | 2 | .31 | 22 | 28 | 37.83 | 19.72 |
| 517 | B.A.C. 4312 | 7.1 | 2 | .31 | 12 | 44 | 24.71 | 3.115 | 2 | .31 | 99 | 36 | 27.44 | 19.68 |
| 518 | 31 Comæ | ... | 1 | .30 | 12 | 45 | 10.23 | 2.930 | 1 | .30 | 61 | 43 | 47.74 | 19.67 |
| 519 | δ Virginis | ... | 1 | .36 | 12 | 48 | 51.20 | 3.050 | 1 | .36 | 85 | 52 | 24.26 | 19.60 |
| 520 | 12 Canum Venat. | ... | 1 | .37 | 12 | 49 | 45.29 | 2.817* | 1 | .37 | 50 | 57 | 25.57 | 19.53* |
| 521 | W.B. (2) XII. 1019 | ... | 1 | .29 | 12 | 51 | 31.35 | 2.843 | 1 | .29 | 52 | 32 | 46.54 | 19.55 |
| 522 | W.B. (2) XII. 1063 | ... | 2 | .32 | 12 | 53 | 54.44 | 2.955 | 2 | .32 | 69 | 38 | 31.02 | 19.50 |
| 523 | W.B. (2) XII. 1086 | 7.2 | 3 | .36 | 12 | 55 | 1.36 | 2.942 | 3 | .36 | 68 | 0 | 28.19 | 19.48 |
| 524 | ε Virginis | ... | 5 | .33 | 12 | 55 | 30.33 | 3.005 | 5 | .33 | 78 | 19 | 10.60 | 19.47 |
| 525 | W.B. (2) XII. 1124 | ... | 1 | .39 | 12 | 57 | 33.73 | +2.932 | 1 | .39 | 67 | 23 | 8.45 | +19.43 |

No. 497. Piazzi xii. 33. Companion 7.8 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | | | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | | | Pre- cession in N.P.D. |
|-----|-------------------------------|------|---------------------------|-----------------------------------|-------------------------------|----|-------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|----|-------|------------------------------|
| | | | | | h. | m. | s. | | | | ° | ' | " | |
| 526 | 40 Comæ | 6.0 | 2 | 0.38 | 12 | 59 | 51.16 | +2.922 | 2 | 0.38 | 66 | 39 | 50.99 | +19.37 |
| 527 | θ Virginis | ... | 2 | .34 | 13 | 3 | 0.87 | 3.099* | 2 | .34 | 94 | 49 | 18.78 | 19.34* |
| 528 | W.B. (2) XIII. 45... | 7.2 | 1 | .38 | 13 | 4 | 20.98 | 2.921 | 1 | .38 | 68 | 3 | 2.55 | 19.27 |
| 529 | 58 Virginis | ... | 1 | .39 | 13 | 10 | 26.14 | 3.140 | 1 | .39 | 99 | 50 | 19.83 | 19.12 |
| 530 | B.A.C. 4444 | 6.7 | 1 | .38 | 13 | 10 | 37.96 | 2.967 | 1 | .38 | 75 | 37 | 3.38 | 19.11 |
| 531 | B.A.C. 4455 | 7.0 | 1 | .38 | 13 | 12 | 40.96 | 3.152 | 1 | .38 | 100 | 58 | 0.62 | 19.06 |
| 532 | B.A.C. 4472 | 7.8? | 1 | .28 | 13 | 15 | 24.45 | 3.026 | 1 | .28 | 84 | 8 | 29.66 | 18.98 |
| 533 | Spica | ... | 3 | .45 | 13 | 18 | 8.25 | 3.150* | 3 | .45 | 100 | 27 | 37.93 | 18.94* |
| 534 | W.B. (2) XIII. 423 | 8.2 | 3 | .30 | 13 | 22 | 26.95 | 2.895 | 2 | .30 | 69 | 30 | 56.24 | 18.77 |
| 535 | W.B. (2) XIII. 461 | 8.2 | 3 | .34 | 13 | 24 | 1.87 | 2.802 | 3 | .34 | 60 | 44 | 19.53 | 18.72 |
| 536 | B.A.C. 4513 | 7.6 | 2 | .38 | 13 | 24 | 30.79 | 2.847 | 2 | .38 | 65 | 4 | 13.63 | 18.71 |
| 537 | l ² Virginis | ... | 1 | .33 | 13 | 25 | 0.09 | 3.118 | 1 | .33 | 95 | 33 | 46.16 | 18.69 |
| 538 | ζ Virginis | 4.0 | 5 | .37 | 13 | 27 | 52.00 | 3.052* | 5 | .37 | 89 | 54 | 34.12 | 18.53* |
| 539 | 81 Virginis | ... | 2 | .30 | 13 | 30 | 34.13 | 3.135 | 2 | .30 | 97 | 11 | 13.85 | 18.51 |
| 540 | B.A.C. 4553 | 7.4 | 1 | .35 | 13 | 31 | 40.83 | 2.847 | 1 | .35 | 66 | 47 | 9.39 | 18.47 |
| 541 | Lalande 25221 | 8.2 | 3 | .32 | 13 | 32 | 34.65 | 2.826 | 3 | .32 | 65 | 4 | 6.15 | 18.44 |
| 542 | 1 Boötis | ... | 1 | .33 | 13 | 34 | 16.42 | 2.869 | 1 | .33 | 69 | 21 | 53.75 | 18.38 |
| 543 | m Virginis | 6.0 | 5 | .38 | 13 | 34 | 34.88 | 3.146 | 5 | .38 | 98 | 1 | 31.81 | 18.37 |
| 544 | Radcliffe 3075..... | 7.9 | ... | ... | 13 | 34 | 53 | ..... | 7 | .84 | 4 | 2 | 28.56 | 18.36 |
| 545 | Lalande 25292 | 8.2 | 1 | .29 | 13 | 35 | 45.58 | 2.837 | 1 | .29 | 66 | 42 | 7.74 | 18.33 |
| 546 | B.A.C. 4575 | ... | 2 | .34 | 13 | 37 | 25.31 | 2.832 | 2 | .34 | 66 | 37 | 22.38 | 18.27 |
| 547 | B.A.C. 4578 | ... | 1 | .41 | 13 | 37 | 55.63 | 3.138 | 1 | .41 | 96 | 57 | 37.03 | 18.25 |
| 548 | 87 Virginis | 6.2 | 1 | .34 | 13 | 40 | 8.36 | 3.245 | 1 | .34 | 107 | 11 | 13.66 | 18.17 |
| 549 | τ Boötis | ... | 1 | .40 | 13 | 40 | 53.56 | 2.885 | 1 | .40 | 71 | 52 | 26.14 | 18.14 |
| 550 | B.A.C. 4604 | ... | 1 | .37 | 13 | 41 | 43.55 | 3.092 | 1 | .37 | 92 | 10 | 15.02 | 18.11 |
| 551 | η Ursæ Majoris | ... | 4 | .81 | 13 | 42 | 15.30 | 2.373* | 4 | .81 | 40 | 1 | 3.25 | 18.11* |
| 552 | 89 Virginis | 6.0 | 2 | .32 | 13 | 42 | 35.78 | 3.252 | 2 | .32 | 107 | 27 | 53.77 | 18.08 |
| 553 | B.A.C. 4610 | 6.5 | 1 | .38 | 13 | 42 | 35.79 | 2.711 | 1 | .38 | 58 | 8 | 44.75 | 18.08 |
| 554 | B.A.C. 4621 | ... | 1 | .43 | 13 | 43 | 42.47 | 2.866 | 1 | .43 | 70 | 42 | 12.99 | 18.04 |
| 555 | B.A.C. 4622 | 7.3 | 2 | .30 | 13 | 43 | 48.47 | 3.143 | 2 | .30 | 97 | 7 | 4.05 | 18.04 |
| 556 | W.B. (2) XIII. 954 | 8.5 | 2 | .38 | 13 | 45 | 15.92 | 2.814 | 2 | .38 | 66 | 34 | 15.89 | 17.98 |
| 557 | η Boötis | ... | 5 | .46 | 13 | 48 | 18.19 | 2.858* | 5 | .46 | 70 | 55 | 46.25 | 18.21* |
| 558 | Lacaille 5763 | 6.5 | 1 | .38 | 13 | 48 | 55.73 | 3.382 | 1 | .38 | 116 | 58 | 48.62 | 17.84 |
| 559 | 92 Virginis | ... | 1 | .39 | 13 | 49 | 38.29 | 3.053 | 1 | .39 | 88 | 17 | 32.09 | 17.80 |
| 560 | B.A.C. 4662 | ... | 2 | .37 | 13 | 52 | 11.71 | +2.899 | 2 | .37 | 74 | 41 | 41.06 | +17.70 |

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | | | Pre- cession in R. A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | | | Pre- cession in N.P.D. |
|-----|---------------------------|------|---------------------------|-----------------------------------|-------------------------------|----|-------|-----------------------------|-----------------------------|-----------------------------------|---------------------------------|----|-------|------------------------------|
| | | | | | h. | m. | s. | | | | s. | ° | ' | |
| 561 | B.A.C. 4665 | 7.0 | 2 | 0.39 | 13 | 52 | 52.78 | +3.103 | 2 | 0.39 | 92 | 53 | 41.34 | +17.67 |
| 562 | B.A.C. 4666 | ... | 1 | .31 | 13 | 53 | 1.08 | 3.154 | 1 | .31 | 97 | 30 | 28.06 | 17.66 |
| 563 | τ Virginis | ... | 4 | .41 | 13 | 54 | 49.71 | 3.047* | 4 | .41 | 87 | 48 | 18.60 | 17.66* |
| 564 | B.A.C. 4673 | ... | 1 | .37 | 13 | 55 | 9.69 | 3.295 | 1 | .37 | 109 | 9 | 38.21 | 17.57 |
| 565 | B.A.C. 4678 | ... | 1 | .39 | 13 | 56 | 36.45 | 2.659 | 1 | .39 | 57 | 41 | 33.06 | 17.51 |
| 566 | W.B. (2) XIII. 1252 | ... | 2 | .36 | 13 | 57 | 8.02 | 2.791 | 2 | .36 | 66 | 51 | 27.72 | 17.49 |
| 567 | W.B. (2) XIII. 1303 | ... | 2 | .39 | 13 | 59 | 59.85 | 2.790 | 2 | .39 | 67 | 11 | 26.90 | 17.37 |
| 568 | W.B. (2) XIII. 1350 | 8.0 | 1 | .37 | 14 | 1 | 40.29 | +2.810 | 1 | .37 | 68 | 55 | 38.88 | 17.29 |
| 569 | Groombridge 2099 | 7.4 | 1 | .33 | 14 | 3 | 39.95 | -7.840 | 3 | .38 | 3 | 36 | 2.81 | 17.20 |
| 570 | κ Virginis | 5.0 | 5 | .38 | 14 | 5 | 45.03 | +3.190 | 6 | .39 | 99 | 38 | 52.72 | 17.11 |
| 571 | Lalande 26089 | 7.7 | 1 | .38 | 14 | 7 | 40.56 | 2.811 | 1 | .38 | 69 | 47 | 28.86 | 17.02 |
| 572 | Arcturus | ... | 9 | .75 | 14 | 9 | 32.99 | 2.734* | 10 | .72 | 70 | 7 | 7.78 | 18.91* |
| 573 | A Boötis | ... | 2 | .42 | 14 | 12 | 19.90 | 2.538 | 2 | .42 | 53 | 52 | 14.93 | 16.81 |
| 574 | π Boötis | 8.8 | 1 | .34 | 14 | 13 | 33.38 | 2.741 | 1 | .34 | 65 | 52 | 42.30 | 16.74 |
| 575 | Piazzi xiv. 60 | ... | 2 | .40 | 14 | 14 | 47.55 | 2.796 | 2 | .40 | 69 | 39 | 11.97 | 16.69 |
| 576 | B.A.C. 4764 | 8.0 | 1 | .37 | 14 | 15 | 33.29 | 3.165 | 1 | .37 | 97 | 9 | 5.49 | 16.65 |
| 577 | 2 Libræ | ... | 3 | .35 | 14 | 16 | 13.22 | 3.218 | 3 | .35 | 101 | 6 | 0.35 | 16.62 |
| 578 | B.A.C. 4766 | ... | 1 | .40 | 14 | 16 | 47.20 | 2.950 | 1 | .40 | 80 | 56 | 28.76 | 16.59 |
| 579 | f Boötis | ... | 2 | .42 | 14 | 20 | 13.47 | 2.794 | 2 | .42 | 70 | 10 | 8.13 | 16.41 |
| 580 | 104 Virginis | 6.3 | 1 | .34 | 14 | 20 | 22.64 | 3.144 | 1 | .34 | 95 | 30 | 50.27 | 16.41 |
| 581 | B.A.C. 4794 | ... | 1 | .43 | 14 | 21 | 22.61 | 3.199 | 1 | .43 | 99 | 24 | 3.73 | 16.36 |
| 582 | B.A.C. 4798 | 6.5 | 2 | .40 | 14 | 23 | 0.68 | 3.051 | 2 | .40 | 88 | 34 | 17.70 | 16.28 |
| 583 | * | ... | 1 | .39 | 14 | 25 | 31.86 | 2.642 | 1 | .39 | 61 | 37 | 40.69 | 16.15 |
| 584 | ρ Boötis | ... | 6 | .48 | 14 | 26 | 3.21 | 2.587* | 5 | .50 | 59 | 2 | 19.71 | 15.98* |
| 585 | Lalande 26645 | 7.0 | 5 | .37 | 14 | 30 | 3.51 | 2.711 | 5 | .37 | 66 | 9 | 53.59 | 15.91 |
| 586 | Lalande 26880-1 | 7.9 | 3 | .39 | 14 | 31 | 18.14 | 2.765 | 3 | .39 | 69 | 33 | 59.81 | 15.84 |
| 587 | W.B. (2) XIV. 664 | 7.7 | 1 | .37 | 14 | 32 | 17.41 | 2.759 | 1 | .37 | 69 | 33 | 44.39 | 15.79 |
| 588 | π Boötis | ... | 2 | .42 | 14 | 34 | 25.57 | 2.816 | 2 | .42 | 73 | 0 | 18.72 | 15.67 |
| 589 | Piazzi xiv. 160 | ... | 1 | .35 | 14 | 35 | 47.42 | 2.737 | 1 | .35 | 68 | 18 | 1.56 | 15.60 |
| 590 | W.B. (2) XIV. 798 | 7.5 | 3 | .38 | 14 | 37 | 59.84 | 2.761 | 3 | .38 | 70 | 57 | 44.72 | 15.48 |
| 591 | ϵ Boötis | ... | 16 | .59 | 14 | 39 | 8.05 | 2.619* | 17 | .60 | 62 | 21 | 34.07 | 15.41* |
| 592 | α Libræ | ... | 4 | .44 | 14 | 43 | 28.17 | 3.305* | 4 | .44 | 105 | 28 | 56.91 | 15.22* |
| 593 | ξ Boötis | ... | 1 | .35 | 14 | 45 | 12.54 | 2.755 | 1 | .35 | 70 | 20 | 29.90 | 15.06 |
| 594 | B.A.C. 4910 | ... | 1 | .39 | 14 | 46 | 9.35 | 3.455 | 1 | .39 | 113 | 25 | 27.34 | 15.01 |
| 595 | ξ^1 Libræ | 7.0 | 4 | .39 | 14 | 47 | 6.48 | +3.250 | 4 | .39 | 101 | 20 | 56.94 | +14.96 |

No. 576. B.A.C. 4764. Companion 8.2 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | Pre- cession in N.P.D. |
|-----|------------------------------|------|---------------------------|-----------------------------------|-------------------------------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|------------------------------|
| | | | | | h. m. s. | s. | | | ° ' " | " |
| 596 | W.B. (2) XIV. 1044 | 7.4 | 1 | 0.41 | 14 48 55.98 | +2.668 | 1 | 0.41 | 65 51 36.90 | +14.85 |
| 597 | ξ^2 Libræ..... | 6.2 | 2 | .38 | 14 49 30.04 | 3.244 | 2 | .38 | 100 52 0.13 | 14.82 |
| 598 | 59 Hydræ | ... | 1 | .36 | 14 50 43.71 | +3.534 | 1 | .36 | 117 6 59.87 | 14.74 |
| 599 | β Ursæ Minoris | ... | 7 | .85 | 14 51 7.31 | -0.253* | 8 | .86 | 15 17 50.30 | 14.76* |
| 600 | W.B. (2) XIV. 1140 | ... | 1 | .46 | 14 52 53.17 | +2.650 | 1 | .46 | 65 17 37.15 | 14.61 |
| 601 | W.B. (2) XIV. 1166 | 8.0 | 1 | .43 | 14 53 53.41 | 2.531 | 1 | .43 | 59 35 48.71 | 14.56 |
| 602 | Piazzi xiv. 247 | ... | 1 | .43 | 14 54 52.00 | 2.687 | 1 | .43 | 67 25 18.78 | 14.49 |
| 603 | Groombridge 2210... | ... | ... | ... | 14 56 15 | ..... | 4 | .30 | 3 29 56.59 | 14.41 |
| 604 | Σ 1904 (2nd star) ... | 7.5 | 1 | .38 | 14 57 27.30 | 2.973 | 1 | .38 | 83 58 47.64 | 14.34 |
| 605 | B.A.C. 4959 | ... | 1 | .39 | 14 57 54.83 | 3.513 | 1 | .39 | 115 15 54.03 | 14.31 |
| 606 | ν^3 Libræ | 6.5 | 2 | .42 | 14 59 20.37 | 3.340 | 2 | .42 | 105 57 45.69 | 14.22 |
| 607 | W.B. (2) XIV. 1301 | 7.7 | 1 | .43 | 15 0 34.04 | 2.589 | 1 | .43 | 63 2 32.07 | 14.15 |
| 608 | W.B. (2) XV. 7 | ... | 1 | .43 | 15 2 9.05 | 2.693 | 1 | .43 | 68 23 40.14 | 14.04 |
| 609 | W.B. (2) XV. 71 ... | 8.3 | 1 | .41 | 15 4 37.15 | 2.602 | 1 | .41 | 64 2 45.42 | 13.90 |
| 610 | B.A.C. 5000 | ... | 1 | .47 | 15 5 13.04 | +2.429 | 1 | .47 | 56 24 42.27 | 13.85 |
| 611 | Groomb. 2213 S.P.... | 7.0 | 1 | .02 | 15 5 29.30 | -6.921 | 8 | .12 | 5 31 52.97 | 13.84 |
| 612 | B.A.C. 5006 | 6.0 | 1 | .38 | 15 5 57.39 | +3.537 | 1 | .38 | 115 41 20.50 | 13.81 |
| 613 | B.A.C. 5020 | 7.0 | 2 | .42 | 15 7 38.87 | 3.570 | 2 | .42 | 117 5 47.43 | 13.70 |
| 614 | B.A.C. 5023 | 6.0 | 1 | .37 | 15 8 37.17 | 3.465 | 1 | .37 | 111 54 2.00 | 13.63 |
| 615 | β Libræ | ... | 2 | .39 | 15 9 47.94 | 3.218* | 2 | .39 | 98 53 10.26 | 13.58* |
| 616 | B.A.C. 5043 | 7.4 | 1 | .41 | 15 12 8.59 | 3.222 | 1 | .41 | 98 39 14.26 | 13.41 |
| 617 | B.A.C. 5045 | ... | 1 | .38 | 15 12 27.71 | 3.595 | 1 | .38 | 117 47 50.83 | 13.39 |
| 618 | Radcliffe 3362..... | ... | ... | ... | 15 12 31 | ..... | 2 | .24 | 3 58 46.04 | 13.39 |
| 619 | 6 Serpentis | ... | 1 | .47 | 15 14 12.69 | 3.050 | 1 | .47 | 88 47 41.70 | 13.28 |
| 620 | ϕ^2 Libræ | 6.6 | 3 | .43 | 15 15 33.57 | 3.334 | 3 | .43 | 104 39 10.53 | 13.19 |
| 621 | B.A.C. 5070 | 6.0 | 3 | .38 | 15 16 31.28 | 3.284 | 3 | .38 | 101 53 19.73 | 13.12 |
| 622 | 8 Serpentis | ... | 2 | .46 | 15 16 49.45 | 3.080 | 2 | .46 | 90 32 28.33 | 13.11 |
| 623 | η Coronæ | ... | 1 | .37 | 15 17 40.10 | 2.466 | 1 | .37 | 59 13 34.62 | 13.05 |
| 624 | ζ^1 Libræ..... | ... | 2 | .44 | 15 20 42.16 | 3.370 | 2 | .44 | 106 14 47.71 | 12.84 |
| 625 | Groomb. 2283 S.P.... | 7.6 | ... | ... | 15 21 43 | ..... | 2 | .48 | 2 15 30.02 | 12.78 |
| 626 | W.B. (2) XV. 474 ... | 8.2 | 1 | .38 | 15 22 20.01 | 2.633 | 1 | .38 | 67 3 3.50 | 12.73 |
| 627 | W.B. (2) XV. 491 ... | 8.0 | 1 | .41 | 15 22 53.07 | 2.634 | 1 | .41 | 67 5 18.17 | 12.70 |
| 628 | B.A.C. 5104 | ... | 1 | .39 | 15 24 1.00 | 3.442 | 1 | .39 | 109 42 14.37 | 12.62 |
| 629 | B.A.C. 5105 | 6.8 | 2 | .38 | 15 24 21.29 | 3.522 | 2 | .38 | 113 25 16.95 | 12.60 |
| 630 | 11 Serpentis | ... | 1 | .39 | 15 26 3.83 | +3.084 | 1 | .39 | 90 43 44.16 | +12.48 |

No. 604. Σ 1904. Companion 7.7 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | | | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | | | Pre- cession in N.P.D. |
|-----|------------------------------|------|---------------------------|-----------------------------------|-------------------------------|----|-------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|----|-------|------------------------------|
| | | | | | h. | m. | s. | | | | ° | ' | " | |
| 631 | B.A.C. 5126 | ... | 1 | 0.48 | 15 | 26 | 54.04 | +2.760 | 1 | 0.48 | 73 | 31 | 57.42 | +12.42 |
| 632 | B.A.C. 5129 | ... | 1 | .37 | 15 | 27 | 12.56 | 3.232 | 1 | .37 | 98 | 43 | 48.20 | 12.40 |
| 633 | B.A.C. 5128 | ... | 1 | .46 | 15 | 27 | 16.29 | 3.567 | 1 | .46 | 115 | 16 | 53.41 | 12.40 |
| 634 | γ Libræ .. | ... | 1 | .47 | 15 | 28 | 2.07 | 3.340 | 1 | .47 | 104 | 20 | 25.08 | 12.35 |
| 635 | α Coronæ | ... | 8 | .80 | 15 | 29 | 0.91 | 2.538* | 12 | .68 | 62 | 49 | 57.65 | 12.35* |
| 636 | τ^4 Serpentis | 6.5 | 1 | .38 | 15 | 30 | 15.65 | 2.775 | 1 | .38 | 74 | 27 | 8.79 | 12.19 |
| 637 | B.A.C. 5158 | ... | 1 | .47 | 15 | 31 | 0.90 | 3.338 | 1 | .47 | 104 | 4 | 15.57 | 12.14 |
| 638 | Σ 1962 (2nd star) ... | 7.5 | 2 | .38 | 15 | 31 | 26.19 | 3.228 | 2 | .38 | 98 | 20 | 57.49 | 12.11 |
| 639 | B.A.C. 5167 | ... | 1 | .42 | 15 | 33 | 19.97 | 3.662 | 1 | .42 | 118 | 51 | 54.42 | 11.98 |
| 640 | ζ Coronæ | ... | 1 | .39 | 15 | 34 | 19.90 | 2.258 | 1 | .39 | 52 | 55 | 39.93 | 11.91 |
| 641 | τ^7 Serpentis | 5.7 | 2 | .44 | 15 | 35 | 53.01 | 2.700 | 2 | .44 | 71 | 6 | 25.99 | 11.80 |
| 642 | γ Coronæ | ... | 1 | .41 | 15 | 37 | 6.82 | 2.524 | 1 | .41 | 63 | 16 | 41.92 | 11.71 |
| 643 | α Serpentis..... | ... | 6 | .46 | 15 | 37 | 40.13 | 2.949* | 7 | .52 | 83 | 9 | 1.25 | 11.61* |
| 644 | Λ^2 Serpentis | 6.0 | 2 | .45 | 15 | 39 | 9.83 | 3.097 | 2 | .45 | 91 | 22 | 53.76 | 11.56 |
| 645 | 29 Serpentis | 7.5 | 1 | .42 | 15 | 40 | 14.19 | 2.757 | 1 | .42 | 74 | 3 | 16.08 | 11.49 |
| 646 | ν Serpentis | ... | 1 | .39 | 15 | 41 | 3.94 | 2.785 | 1 | .39 | 75 | 28 | 10.03 | 11.42 |
| 647 | B.A.C. 5228 | 6.8 | 2 | .34 | 15 | 42 | 30.71 | 3.607 | 2 | .34 | 115 | 52 | 41.99 | 11.32 |
| 648 | δ Serpentis | 6.2 | 1 | .41 | 15 | 44 | 16.89 | 3.123 | 1 | .41 | 92 | 40 | 55.94 | 11.19 |
| 649 | Λ Scorpii..... | ... | 1 | .48 | 15 | 45 | 34.27 | 3.589 | 1 | .48 | 114 | 55 | 22.20 | 11.10 |
| 650 | θ Libræ | ... | 1 | .40 | 15 | 46 | 11.73 | 3.398 | 1 | .40 | 106 | 19 | 59.45 | 11.05 |
| 651 | 47 Libræ..... | 6.4 | 3 | .47 | 15 | 47 | 15.92 | 3.456 | 3 | .47 | 108 | 59 | 2.03 | 10.97 |
| 652 | 40 Serpentis | 6.5 | 1 | .43 | 15 | 48 | 11.87 | 2.894 | 1 | .43 | 81 | 1 | 20.80 | 10.91 |
| 653 | Radcliffe 3475..... | 7.3 | ... | ... | 15 | 48 | 19 | ..... | 6 | .32 | 4 | 44 | 17.08 | 10.90 |
| 654 | B.A.C. 5276 | 7.3 | 1 | .39 | 15 | 48 | 58.22 | 3.105 | 1 | .39 | 91 | 46 | 4.10 | 10.85 |
| 655 | γ Serpentis..... | ... | 1 | .50 | 15 | 50 | 15.90 | 2.744 | 1 | .50 | 73 | 53 | 53.45 | 10.76 |
| 656 | B.A.C. 5291 | ... | 1 | .38 | 15 | 50 | 59.00 | 3.333 | 1 | .38 | 103 | 3 | 10.95 | 10.70 |
| 657 | (T) Coronæ..... | 8.4 | 3 | .42 | 15 | 53 | 53.62 | 2.508 | 2 | .41 | 63 | 41 | 51.19 | 10.49 |
| 658 | β^1 Scorpii | ... | 5 | .52 | 15 | 57 | 38.96 | 3.477* | 5 | .52 | 109 | 26 | 6.53 | 10.22* |
| 659 | B.A.C. 5345 | ... | 1 | .43 | 15 | 59 | 49.53 | 3.588 | 1 | .43 | 114 | 5 | 55.35 | 10.04 |
| 660 | 46 Serpentis | 7.0 | 1 | .49 | 16 | 1 | 42.47 | 2.856 | 1 | .49 | 79 | 33 | 28.99 | 9.90 |
| 661 | B.A.C. 5379 | ... | 1 | .47 | 16 | 3 | 33.90 | 3.233 | 1 | .47 | 97 | 56 | 47.26 | 9.76 |
| 662 | ν Scorpii | ... | 2 | .50 | 16 | 4 | 12.65 | 3.476 | 2 | .50 | 109 | 6 | 32.87 | 9.71 |
| 663 | Radcliffe 3523..... | ... | ... | ... | 16 | 4 | 18 | ..... | 3 | .36 | 4 | 19 | 5.22 | 9.70 |
| 664 | Radcliffe 3522..... | 7.0 | ... | ... | 16 | 5 | 32 | ..... | 2 | .42 | 5 | 59 | 55.25 | 9.62 |
| 665 | B.A.C. 5394 | ... | 1 | .46 | 16 | 5 | 41.89 | +3.595 | 1 | .46 | 114 | 4 | 29.10 | +9.59 |

| No. | Name of Star | Mag. | Number of Obs. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | | | Pre-cession in R.A. | Number of Obs. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | | | Pre-cession in N.P.D. |
|-----|-------------------------------|------|----------------|--------------------------------|-------------------------------|----|-------|---------------------|----------------|--------------------------------|---------------------------------|----|-------|-----------------------|
| | | | | | h. | m. | s. | | | | ° | ' | " | |
| 666 | B.A.C. 5395 | ... | 1 | 0.52 | 16 | 5 | 47.98 | +3.523 | 1 | 0.52 | 111 | 3 | 16.01 | +9.58 |
| 667 | δ Ophiuchi | ... | 5 | .48 | 16 | 7 | 19.55 | 3.136* | 5 | .48 | 93 | 20 | 46.87 | 9.59* |
| 668 | B.A.C. 5418 | 7.3 | 1 | .41 | 16 | 8 | 23.45 | 3.595 | 1 | .41 | 113 | 56 | 36.76 | 9.39 |
| 669 | 18 Herculis..... | ... | 1 | .40 | 16 | 12 | 10.02 | 2.541 | 1 | .40 | 66 | 3 | 50.73 | 9.09 |
| 670 | 19 Scorpii | ... | 1 | .52 | 16 | 12 | 34.57 | 3.598 | 1 | .52 | 113 | 50 | 34.42 | 9.05 |
| 671 | γ Herculis | ... | 11 | .49 | 16 | 16 | 0.55 | 2.646 | 12 | .50 | 70 | 31 | 46.91 | 8.79 |
| 672 | χ Ophiuchi | 5.8 | 2 | .40 | 16 | 19 | 15.62 | 3.468 | 2 | .40 | 108 | 8 | 55.48 | 8.53 |
| 673 | Antares | ... | 4 | .51 | 16 | 21 | 11.72 | 3.666* | 4 | .51 | 116 | 7 | 51.12 | 8.41* |
| 674 | η Draconis | ... | 5 | .88 | 16 | 22 | 10.89 | 0.823* | 10 | .66 | 28 | 10 | 56.40 | 8.22* |
| 675 | 26 Herculis..... | ... | 1 | .52 | 16 | 22 | 52.06 | 2.279 | 1 | .52 | 57 | 0 | 2.84 | 8.25 |
| 676 | B.A.C. 5513 | ... | 2 | .52 | 16 | 23 | 9.61 | 3.672 | 2 | .52 | 116 | 14 | 32.96 | 8.22 |
| 677 | φ Ophiuchi..... | ... | 1 | .56 | 16 | 23 | 28.32 | 3.427 | 1 | .56 | 106 | 19 | 0.89 | 8.20 |
| 678 | λ Ophiuchi | ... | 2 | .51 | 16 | 24 | 9.33 | 3.022 | 2 | .51 | 87 | 43 | 12.15 | 8.14 |
| 679 | ω Ophiuchi..... | 5.5 | 2 | .40 | 16 | 24 | 11.75 | 3.544 | 2 | .40 | 111 | 10 | 34.54 | 8.14 |
| 680 | B.A.C. 5528 | ... | 1 | .42 | 16 | 24 | 59.83 | 3.414 | 1 | .42 | 105 | 41 | 34.98 | 8.07 |
| 681 | h Herculis | ... | 2 | .47 | 16 | 26 | 19.96 | 2.814 | 2 | .47 | 78 | 13 | 17.08 | 7.97 |
| 682 | ζ Ophiuchi | ... | 4 | .53 | 16 | 29 | 46.95 | 3.295 | 4 | .53 | 100 | 17 | 32.84 | 7.69 |
| 683 | B.A.C. 5562 | 7.0 | 1 | .41 | 16 | 31 | 47.03 | 3.748 | 1 | .41 | 118 | 40 | 18.31 | 7.53 |
| 684 | B.A.C. 5579 | ... | 1 | .56 | 16 | 33 | 49.49 | 3.462 | 1 | .56 | 107 | 28 | 44.56 | 7.36 |
| 685 | m ² Herculis | ... | 1 | .46 | 16 | 33 | 59.50 | 2.974 | 1 | .46 | 85 | 30 | 56.88 | 7.35 |
| 686 | ζ Herculis | ... | 11 | .76 | 16 | 36 | 14.08 | 2.262* | 15 | .72 | 58 | 9 | 10.02 | 6.72* |
| 687 | B.A.C. 5608 | ... | 1 | .53 | 16 | 37 | 32.59 | 3.692 | 1 | .53 | 116 | 23 | 50.77 | 7.06 |
| 688 | B.A.C. 5634 | 7.4 | 2 | .49 | 16 | 41 | 48.13 | 2.817 | 2 | .49 | 78 | 37 | 41.36 | 6.71 |
| 689 | B.A.C. 5641 | 7.0 | 1 | .41 | 16 | 43 | 10.91 | 3.649 | 1 | .41 | 114 | 36 | 0.14 | 6.60 |
| 690 | B.A.C. 5642 | ... | 1 | .56 | 16 | 43 | 13.76 | 3.440 | 1 | .56 | 106 | 18 | 43.78 | 6.60 |
| 691 | 48 Herculis..... | 6.3 | 1 | .55 | 16 | 44 | 2.60 | 2.335 | 1 | .55 | 59 | 48 | 14.24 | 6.53 |
| 692 | W.B. (2) XVI. 1415 | 7.2 | 3 | .49 | 16 | 45 | 58.28 | 2.589 | 3 | .49 | 69 | 11 | 57.09 | 6.37 |
| 693 | B.A.C. 5687 | ... | 1 | .53 | 16 | 47 | 31.02 | 3.672 | 1 | .53 | 115 | 18 | 50.08 | 6.24 |
| 694 | B.A.C. 5700 | ... | 1 | .54 | 16 | 49 | 11.54 | 3.517 | 1 | .54 | 109 | 19 | 27.44 | 6.10 |
| 695 | 56 Herculis..... | ... | ... | ... | 16 | 49 | 32 | ..... | 2 | .48 | 64 | 3 | 4.93 | 6.06 |
| 696 | B.A.C. 5704 | 8.0 | 1 | .49 | 16 | 50 | 1.14 | 3.690 | ... | ... | 115 | 53 | ..... | ..... |
| 697 | κ Ophiuchi..... | ... | 4 | .50 | 16 | 51 | 19.55 | 2.834* | 4 | .50 | 80 | 24 | 48.62 | 5.90* |
| 698 | ε Herculis | ... | 7 | .50 | 16 | 55 | 9.82 | 2.295 | 6 | .50 | 58 | 52 | 26.70 | 5.60 |
| 699 | 28 Ophiuchi | 7.0 | 2 | .51 | 16 | 55 | 46.11 | 3.683 | 2 | .51 | 115 | 30 | 10.78 | 5.55 |
| 700 | B.A.C. 5767 | ... | 1 | .48 | 16 | 59 | 43.80 | +3.667 | 1 | .48 | 114 | 48 | 58.93 | +5.21 |

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | | | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | | | Pre- cession in N.P.D. |
|-----|-------------------------------|------|---------------------------|-----------------------------------|-------------------------------|----|-------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|----|-------|------------------------------|
| | | | | | h. | m. | s. | | | | ° | ' | " | |
| 701 | ε Ursæ Minoris | ... | ... | ... | 16 | 59 | 49 | ..... | 4 | 0.47 | 7 | 44 | 51.59 | + 5.21* |
| 702 | B.A.C. 5771 | 6.5 | 1 | 0.55 | 17 | 0 | 28.17 | +3.476 | 1 | .55 | 107 | 25 | 38.91 | 5.15 |
| 703 | B.A.C. 5774 | 6.8 | 1 | .43 | 17 | 1 | 18.89 | 3.091 | 1 | .43 | 90 | 53 | 59.17 | 5.08 |
| 704 | η Ophiuchi | ... | 5 | .48 | 17 | 2 | 41.69 | 3.431 | 5 | .48 | 105 | 33 | 19.39 | 4.96 |
| 705 | Radcliffe 3685 | 7.8 | ... | ... | 17 | 5 | 14 | ..... | 7 | .41 | 5 | 7 | 12.60 | 4.74 |
| 706 | W.B. (2) XVII. 136 | 8.0 | 1 | .48 | 17 | 6 | 25.52 | 2.590 | 1 | .48 | 69 | 42 | 21.03 | 4.65 |
| 707 | A Ophiuchi | ... | 1 | .55 | 17 | 7 | 6.39 | 3.716 | 1 | .55 | 116 | 24 | 1.03 | 4.59 |
| 708 | α Herculis | ... | 5 | .71 | 17 | 8 | 32.24 | 2.732* | 6 | .73 | 75 | 27 | 14.92 | 4.42* |
| 709 | * | ... | 1 | .49 | 17 | 10 | 7.37 | 2.493 | 1 | .49 | 66 | 6 | 18.96 | 4.33 |
| 710 | B.A.C. 5838 | 8.0 | 1 | .49 | 17 | 11 | 57.00 | 3.802 | 1 | .49 | 119 | 13 | 15.50 | 4.17 |
| 711 | ξ Ophiuchi | ... | 2 | .48 | 17 | 12 | 58.51 | 3.572 | 2 | .48 | 110 | 57 | 54.30 | 4.08 |
| 712 | θ Ophiuchi | ... | 2 | .50 | 17 | 13 | 46.87 | 3.676* | 3 | .50 | 114 | 51 | 42.03 | 4.00* |
| 713 | B.A.C. 5856 | 5.8 | 2 | .51 | 17 | 14 | 24.53 | 2.640 | 1 | .51 | 71 | 48 | 8.27 | 3.96 |
| 714 | B.A.C. 5866 | ... | 1 | .53 | 17 | 16 | 41.27 | 3.583 | 1 | .53 | 111 | 18 | 45.29 | 3.77 |
| 715 | Oeltz. Arg. 16772-3 | ... | 1 | .53 | 17 | 18 | 31.72 | 3.719 | 1 | .53 | 116 | 12 | 36.48 | 3.61 |
| 716 | B.A.C. 5878 | 7.0 | 1 | .49 | 17 | 18 | 37.79 | 3.707 | 1 | .49 | 115 | 49 | 13.46 | 3.60 |
| 717 | B.A.C. 5880 | ... | ... | ... | 17 | 18 | 41 | ..... | 1 | .47 | 111 | 20 | 51.71 | 3.60 |
| 718 | B.A.C. 5894 | 6.0 | 1 | .55 | 17 | 19 | 50.94 | 2.892 | 1 | .55 | 82 | 17 | 2.10 | 3.49 |
| 719 | σ Ophiuchi | ... | 4 | .55 | 17 | 19 | 52.02 | 2.972 | 4 | .55 | 85 | 44 | 24.67 | 3.49 |
| 720 | B.A.C. 5905 | ... | 1 | .60 | 17 | 22 | 47.10 | 3.438 | 1 | .60 | 105 | 31 | 33.62 | 3.24 |
| 721 | B.A.C. 5927 | 6.4 | 1 | .53 | 17 | 25 | 51.03 | 2.268 | 1 | .53 | 58 | 44 | 23.26 | 2.98 |
| 722 | 78 Herculis | 6.0 | 1 | .55 | 17 | 26 | 33.98 | 2.352 | 1 | .55 | 61 | 29 | 36.18 | 2.92 |
| 723 | 52 Ophiuchi | 7.0 | 3 | .50 | 17 | 27 | 14.87 | 3.604 | 3 | .50 | 111 | 56 | 57.70 | 2.86 |
| 724 | 54 Ophiuchi | ... | 1 | .47 | 17 | 28 | 11.84 | 2.759 | 1 | .47 | 76 | 44 | 37.94 | 2.78 |
| 725 | α Ophiuchi | ... | 9 | .64 | 17 | 28 | 42.87 | 2.781* | 11 | .58 | 77 | 20 | 23.28 | 2.94* |
| 726 | Groombridge 2456 | ... | ... | ... | 17 | 29 | 48 | ..... | 2 | .46 | 9 | 44 | 56.41 | 2.63 |
| 727 | Radcliffe 3749 | 7.5 | ... | ... | 17 | 34 | 58 | ..... | 10 | .29 | 5 | 16 | 44.39 | 2.19 |
| 728 | 58 Ophiuchi | ... | 2 | .50 | 17 | 35 | 24.11 | 3.597 | 2 | .50 | 111 | 36 | 50.52 | 2.15 |
| 729 | B.A.C. 5988 | ... | 1 | .47 | 17 | 35 | 35.19 | 2.463 | 1 | .47 | 65 | 25 | 6.05 | 2.13 |
| 730 | β Ophiuchi | ... | 4 | .56 | 17 | 36 | 51.21 | 2.963 | 4 | .56 | 85 | 22 | 25.99 | 2.02 |
| 731 | μ Herculis | ... | 4 | .57 | 17 | 41 | 12.84 | 2.342* | 4 | .57 | 62 | 11 | 55.22 | 2.38* |
| 732 | B.A.C. 6027 | 7.5 | 1 | .49 | 17 | 42 | 59.98 | 3.633 | 1 | .49 | 112 | 52 | 28.97 | 1.49 |
| 733 | Lalande 32621 | 7.0 | 1 | .58 | 17 | 43 | 58.99 | 2.560 | 1 | .58 | 69 | 2 | 3.30 | 1.40 |
| 734 | Lalande 32626 | ... | 1 | 0.55 | 17 | 44 | 13.29 | +2.561 | 1 | .55 | 69 | 5 | 12.05 | 1.37 |
| 735 | ψ ¹ Draconis | ... | ... | ... | 17 | 44 | 19 | ..... | 4 | .51 | 17 | 47 | 13.02 | + 1.36 |

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | Pre- cession in R. A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | Pre- cession in N.P.D. |
|-----|---------------------------------|------|---------------------------|-----------------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------|---------------------------------|------------------------------|
| | | | | | h. m. s. | s. | | | ° ' " | " |
| 736 | Radcliffe 3798 | ... | ... | ... | 17 45 5 | ..... | 2 | 0'35 | 3 1 51'64 | + 1'30 |
| 737 | W.B. (2) XVII. 1433 | ... | ... | ... | 17 45 10 | ..... | 2 | '46 | 67 38 41'74 | 1'30 |
| 738 | W.B. (2) XVII. 1484 | 7'5 | 1 | 0'48 | 17 46 55'70 | +2'448 | 1 | '48 | 64 58 23'05 | 1'15 |
| 739 | B.A.C. 6069 | ... | 2 | '50 | 17 49 28'75 | 3'054 | 2 | '50 | 89 18 22'10 | 0'92 |
| 740 | 89 Herculis..... | ... | 5 | '55 | 17 50 0'77 | 2'417 | 5 | '55 | 63 55 35'87 | 0'87 |
| 741 | B.A.C. 6072 | ... | 1 | '47 | 17 50 8'87 | 3'803 | 1 | '47 | 118 44 25'08 | 0'86 |
| 742 | W.B. (2) XVII. 1649 | ... | 2 | '59 | 17 52 0'97 | 2'575 | 2 | '59 | 69 38 15'56 | 0'70 |
| 743 | γ Draconis | ... | 3 | '60 | 17 53 29'70 | 1'392* | 3 | '60 | 38 29 40'93 | 0'61* |
| 744 | 67 Ophiuchi | ... | 2 | '59 | 17 53 56'10 | 3'002 | 2 | '59 | 87 3 31'09 | 0'53 |
| 745 | γ ¹ Sagittarii | ... | 2 | '50 | 17 56 27'73 | 3'829 | 2 | '50 | 119 34 54'92 | 0'31 |
| 746 | 70 Ophiuchi | ... | 1 | '47 | 17 58 40'83 | 3'011 | 1 | '47 | 82 27 57'19 | 0'12 |
| 747 | B.A.C. 6127 | 6'0 | 1 | '55 | 17 59 35'85 | 3'796 | 1 | '55 | 118 28 4'32 | + 0'04 |
| 748 | 98 Herculis..... | ... | ... | ... | 18 0 24 | ..... | 2 | '53 | 67 47 27'51 | - 0'04 |
| 749 | 72 Ophiuchi | ... | 5 | '58 | 18 0 59'74 | 2'846 | 7 | '56 | 80 27 7'90 | 0'08 |
| 750 | δ Herculis | ... | ... | ... | 18 1 57 | ..... | 2 | '49 | 59 27 18'01 | 0'17 |
| 751 | 102 Herculis | ... | 1 | '52 | 18 3 1'67 | 2'563 | 1 | '52 | 69 12 14'98 | 0'26 |
| 752 | μ Sagittarii..... | ... | 6 | '53 | 18 5 45'04 | 3'585* | 6 | '53 | 111 5 23'63 | 0'50* |
| 753 | 16 Sagittarii | 6'0 | 1 | '63 | 18 7 14'64 | 3'568 | 1 | '63 | 110 25 25'56 | 0'63 |
| 754 | B.A.C. 6194 | 5'8 | 2 | '54 | 18 9 40'05 | 3'754 | 2 | '54 | 117 5 14'34 | 0'85 |
| 755 | W.B. (2) XVIII. 325 | ... | 1 | '58 | 18 12 17'80 | 2'533 | 1 | '58 | 68 3 10'71 | 1'08 |
| 756 | η Serpentis..... | ... | 4 | '53 | 18 14 22'62 | 3'139 | 6 | '56 | 92 55 50'02 | 1'26 |
| 757 | B.A.C. 6234 | 7'0 | 1 | '63 | 18 15 12'42 | +2'333 | 1 | '63 | 61 4 27'66 | 1'33 |
| 758 | δ Ursæ Minoris | ... | 2 | '02 | 18 15 33'54 | -19'382* | 7 | '24 | 3 23 44'26 | 1'37* |
| 759 | W.B. (2) XVIII. 446 | 8'0 | 1 | '62 | 18 16 18'81 | +2'554 | 1 | '62 | 68 47 33'21 | 1'43 |
| 760 | W.B. (2) XVIII. 475 | ... | 1 | '52 | 18 17 13'08 | 2'562 | 1 | '52 | 69 6 9'13 | 1'51 |
| 761 | λ Sagittarii..... | ... | 2 | '56 | 18 19 42'05 | 3'706 | 2 | '56 | 115 29 28'95 | 1'72 |
| 762 | 24 Ursæ Minoris | ... | ... | ... | 18 20 23 | ..... | 5 | '29 | 3 1 4'40 | 1'78 |
| 763 | B.A.C. 6287 | ... | 2 | '59 | 18 22 19'33 | 3'524 | 2 | '59 | 108 48 38'01 | 1'95 |
| 764 | B.A.C. 6293 | 7'6 | 4 | '61 | 18 23 32'60 | 3'512 | 4 | '61 | 108 21 3'50 | 2'06 |
| 765 | B.A.C. 6304 | 7'0 | 1 | '55 | 18 25 2'97 | 3'668 | 1 | '55 | 114 12 10'54 | 2'19 |
| 766 | Lalande 34322 | ... | 1 | '49 | 18 25 50'50 | 2'510 | 1 | '49 | 67 6 30'19 | 2'26 |
| 767 | B.A.C. 6321 | ... | 1 | '62 | 18 27 26'43 | 3'830 | 1 | '62 | 119 48 2'91 | 2'40 |
| 768 | B.A.C. 6324 | ... | 1 | '58 | 18 27 35'67 | 3'331 | 1 | '58 | 101 4 40'65 | 2'41 |
| 769 | α Lyrae | ... | 9 | '51 | 18 32 24'10 | 2'030* | 14 | '51 | 51 20 21'61 | 3'12* |
| 770 | Piazzi xviii. 140..... | 8'0 | 1 | '55 | 18 33 16'82 | +3'416 | 1 | '55 | 104 37 32'58 | - 2'90 |

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | | | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | | | Pre- cession in N.P.D. |
|-----|---------------------------------|------|---------------------------|-----------------------------------|-------------------------------|----|-------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|----|---------|------------------------------|
| | | | | | h. | m. | s. | | | | ° | ' | " | |
| 771 | B.A.C. 6358 | ... | 4 | 0.55 | 18 | 34 | 4.47 | +3.417 | 4 | 0.55 | 104 | 41 | 10.92 | - 2.97 |
| 772 | W.B.(2) XVIII.1099 | 7.5 | 1 | .63 | 18 | 37 | 2.77 | 2.576 | 1 | .63 | 69 | 27 | 5.99 | 3.23 |
| 773 | 4 Aquilæ | 5.7 | 1 | .62 | 18 | 38 | 4.13 | 3.027 | 1 | .62 | 88 | 4 | 23.82 | 3.31 |
| 774 | 28 Sagittarii | 6.0 | 1 | .55 | 18 | 38 | 15.69 | 3.617 | 1 | .55 | 112 | 31 | 41.07 | 3.33 |
| 775 | Σ 2391 (2nd star)... | ... | 1 | .49 | 18 | 41 | 28.87 | 3.213 | 1 | .49 | 96 | 9 | 4.18 | 3.61 |
| 776 | Rumker 6744 | ... | 1 | .55 | 18 | 42 | 38.27 | 2.498 | 1 | .55 | 66 | 26 | 13.12 | 3.71 |
| 777 | 30 Sagittarii | 6.5 | 1 | .55 | 18 | 42 | 47.14 | 3.610 | 1 | .55 | 112 | 18 | 41.18 | 3.72 |
| 778 | W.B.(2) XVIII.1302 | ... | 1 | .53 | 18 | 43 | 13.64 | 2.566 | 1 | .53 | 68 | 58 | 52.00 | 3.76 |
| 779 | β Lyrae | ... | 5 | .70 | 18 | 45 | 7.91 | 2.212* | 5 | .70 | 56 | 47 | 27.41 | 3.90* |
| 780 | 112 Herculis | ... | 2 | .58 | 18 | 46 | 33.04 | 2.561 | 2 | .58 | 68 | 44 | 2.15 | 4.05 |
| 781 | B.A.C. 6448 | 6.5 | 2 | .58 | 18 | 47 | 53.81 | 3.635 | 2 | .58 | 113 | 20 | 24.47 | 4.16 |
| 782 | B.A.C. 6450 | ... | 1 | .54 | 18 | 48 | 27.30 | 3.634 | 1 | .54 | 113 | 18 | 49.63 | 4.21 |
| 783 | θ Serpentis | ... | 1 | .52 | 18 | 49 | 33.13 | 2.979 | 1 | .52 | 85 | 58 | 0.69 | 4.30 |
| 784 | ξ ² Sagittarii | ... | 1 | .49 | 18 | 49 | 44.12 | 3.579 | 1 | .49 | 111 | 16 | 43.30 | 4.32 |
| 785 | δ ² Lyrae | ... | ... | ... | 18 | 49 | 49 | ..... | 2 | .55 | 53 | 16 | (15.58) | 4.32 |
| 786 | 11 Aquilæ | 5.5 | 1 | .55 | 18 | 52 | 55.56 | 2.760 | 1 | .55 | 76 | 33 | 12.09 | 4.59 |
| 787 | ε Aquilæ | ... | 2 | .55 | 18 | 53 | 32.30 | 2.725 | 2 | .55 | 75 | 6 | 39.79 | 4.64 |
| 788 | Σ 2426 (2nd star)... | ... | 1 | .52 | 18 | 53 | 46.30 | 2.778 | 1 | .52 | 77 | 17 | 28.43 | 4.66 |
| 789 | λ Lyrae | ... | 2 | .53 | 18 | 54 | 57.59 | 2.261 | 2 | .53 | 58 | 2 | 23.82 | 4.77 |
| 790 | 6 Sagittarii | ... | 4 | .55 | 18 | 56 | 39.13 | 3.593 | 4 | .55 | 111 | 56 | 1.61 | 4.91 |
| 791 | Radcliffe 4208 | 6.9 | ... | ... | 18 | 58 | 16 | ..... | 2 | .41 | 3 | 27 | 49.99 | 5.05 |
| 792 | ζ Aquilæ | ... | 5 | .47 | 18 | 59 | 15.00 | 2.752* | 7 | .51 | 76 | 19 | 58.48 | 5.06* |
| 793 | π Sagittarii | ... | 1 | .64 | 19 | 1 | 47.79 | 3.572 | 1 | .64 | 111 | 13 | 58.63 | 5.34 |
| 794 | ι Lyrae | ... | 3 | .53 | 19 | 2 | 31.24 | 2.139 | 3 | .53 | 54 | 6 | 28.34 | 5.41 |
| 795 | B.A.C. 6554 | ... | 1 | .54 | 19 | 2 | 49.27 | 3.804 | 1 | .54 | 119 | 42 | 57.38 | 5.43 |
| 796 | W.B. (2) XIX. 131 | 7.5 | 2 | .53 | 19 | 5 | 37.03 | 2.577 | 2 | .53 | 68 | 57 | 27.67 | 5.66 |
| 797 | ψ Sagittarii | ... | 1 | .60 | 19 | 7 | 19.43 | 3.680 | 2 | .60 | 115 | 29 | 1.44 | 5.81 |
| 798 | B.A.C. 6582 | ... | 2 | .54 | 19 | 9 | 30.98 | 2.581 | 2 | .54 | 68 | 59 | 58.01 | 5.99 |
| 799 | δ Sagittarii | ... | 1 | .71 | 19 | 9 | 47.70 | 3.515 | 1 | .71 | 109 | 11 | 16.82 | 6.01 |
| 800 | W.B. (2) XIX. 283 | 7.7 | 1 | .54 | 19 | 10 | 5.41 | 2.605 | 1 | .54 | 69 | 55 | 44.83 | 6.04 |
| 801 | ω Aquilæ | ... | 5 | .59 | 19 | 11 | 31.63 | 2.814* | 5 | .59 | 78 | 38 | 36.11 | 6.18* |
| 802 | B.A.C. 6596 | 7.2 | 1 | .52 | 19 | 11 | 39.89 | 3.066 | 1 | .52 | 89 | 48 | 59.26 | 6.17 |
| 803 | ν Sagittarii | ... | 1 | .71 | 19 | 14 | 3.29 | 3.439 | 1 | .71 | 106 | 12 | 11.63 | 6.37 |
| 804 | Σ 2504 (2nd star) | ... | 1 | .55 | 19 | 15 | 5.53 | 2.638 | 1 | .55 | 71 | 6 | 16.91 | 6.46 |
| 805 | B.A.C. 6627 | ... | 1 | .54 | 19 | 16 | 0.94 | +3.832 | 1 | .54 | 121 | 3 | 8.96 | - 6.53 |

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | Pre- cession in N.P.D. |
|-----|---------------------------------|------|---------------------------|-----------------------------------|-------------------------------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|------------------------------|
| | | | | | h. m. s. | s. | | | ° ' " | " |
| 806 | 3 Vulpeculæ | ... | 1 | 0.55 | 19 17 21.69 | +2.455 | 1 | 0.55 | 63 59 32.52 | -6.64 |
| 807 | W.B. (2) XIX. 505... .. | ... | 1 | .53 | 19 17 35.45 | 2.604 | 1 | .53 | 69 40 51.73 | 6.66 |
| 808 | δ Aquilæ | ... | 1 | .53 | 19 18 44.56 | 3.024* | 1 | .53 | 87 8 57.89 | 6.86* |
| 809 | B.A.C. 6664 | 6.6 | 1 | .63 | 19 20 58.04 | 3.416 | 1 | .63 | 105 22 16.92 | 6.94 |
| 810 | B.A.C. 6682 | 6.0 | 1 | .54 | 19 24 19.03 | 3.741 | 1 | .54 | 118 16 19.29 | 7.21 |
| 811 | B.A.C. 6695 | ... | 1 | .55 | 19 26 12.92 | 2.602 | 1 | .55 | 69 21 10.56 | 7.37 |
| 812 | μ Aquilæ | ... | 1 | .55 | 19 27 32.63 | 2.917 | ... | ... | 82 54 | ..... |
| 813 | h ² Sagittarii | ... | 1 | .55 | 19 28 33.13 | 3.656* | ... | ... | 115 11 | ..... |
| 814 | 11 Cygni | 6.0 | 1 | .54 | 19 30 59.49 | 2.153 | 1 | .54 | 53 21 4.26 | 7.75 |
| 815 | e ¹ Sagittarii | 6.0 | 2 | .59 | 19 33 2.61 | 3.437 | 2 | .59 | 106 35 49.08 | 7.92 |
| 816 | ψ Aquilæ | ... | 1 | .55 | 19 38 20.12 | 2.791 | 1 | .55 | 77 0 55.88 | 8.35 |
| 817 | f Sagittarii | ... | 1 | .64 | 19 38 32.59 | 3.515 | 1 | .64 | 110 4 45.86 | 8.36 |
| 818 | * | 6.5 | 1 | .54 | 19 39 28.29 | 3.740 | 1 | .54 | 118 49 0.53 | 8.44 |
| 819 | γ Aquilæ | ... | 3 | .19 | 19 39 53.34 | 2.852* | 4 | .30 | 79 42 38.41 | 8.47* |
| 820 | Radcliffe 4476 | 7.8 | ... | ... | 19 41 36 | ..... | 1 | .62 | 4 11 40.00 | 8.61 |
| 821 | B.A.C. 6788 | ... | 1 | .79 | 19 42 28.45 | 3.307 | 1 | .79 | 101 3 29.53 | 8.67 |
| 822 | B.A.C. 6792 | ... | 2 | .74 | 19 42 54.51 | 3.706 | 2 | .74 | 117 48 27.31 | 8.71 |
| 823 | α Aquilæ | ... | 10 | .43 | 19 44 14.70 | 2.927* | 11 | .40 | 81 28 58.74 | 9.19* |
| 824 | Piazzi xix. 320 | ... | 1 | .55 | 19 47 28.86 | 2.637 | 1 | .55 | 70 0 31.74 | 9.06 |
| 825 | β Aquilæ | ... | 1 | .79 | 19 48 43.80 | 2.946* | 2 | .71 | 83 55 32.74 | 8.69* |
| 826 | Rumker 7853 | 7.2 | 1 | .73 | 19 51 8.45 | 2.626 | 1 | .73 | 69 21 26.36 | 9.35 |
| 827 | c Sagittarii | ... | 3 | .72 | 19 54 24.94 | 3.697 | 3 | .72 | 118 4 45.97 | 9.60 |
| 828 | 64 Sagittarii | ... | 1 | .72 | 19 57 41.32 | 3.318 | 1 | .72 | 101 58 31.12 | 9.85 |
| 829 | λ Ursæ Minoris | ... | ... | ... | 19 58 12 | ..... | 6 | .66 | 1 5 36.93 | 9.86* |
| 830 | Lalande 38423 | 7.2 | 2 | .69 | 19 59 12.17 | 2.583 | 2 | .69 | 67 10 6.68 | 9.97 |
| 831 | Σ 2628 (2nd star) ... | 6.5 | 1 | .77 | 20 1 22.88 | 2.888 | 1 | .77 | 80 59 12.14 | 10.13 |
| 832 | B.A.C. 6927 | 7.4 | 1 | .71 | 20 2 53.12 | 2.612 | 1 | .71 | 68 13 59.89 | 10.24 |
| 833 | ξ ¹ Capricorni | ... | 1 | .79 | 20 4 32.30 | 3.330 | 1 | .79 | 102 47 14.82 | 10.37 |
| 834 | 20 Vulpeculæ | 7.2 | 1 | .73 | 20 6 23.67 | 2.513 | 1 | .73 | 63 55 10.48 | 10.51 |
| 835 | Σ 2654 (2nd star) ... | 7.0 | 1 | .77 | 20 8 9.35 | 3.148 | 1 | .77 | 93 54 23.49 | 10.64 |
| 836 | α ² Capricorni | ... | 4 | .75 | 20 10 37.04 | 3.333* | 5 | .76 | 102 57 26.71 | 10.82* |
| 837 | β Capricorni | ... | 1 | .87 | 20 13 28.98 | 3.374 | 2 | .82 | 105 12 6.91 | 11.03 |
| 838 | W.B. (2) XX. 517... .. | 7.3 | 1 | .64 | 20 14 50.14 | 2.625 | 1 | .64 | 68 8 42.10 | 11.13 |
| 839 | B.A.C. 7009 | 5.8 | 1 | .65 | 20 15 56.60 | 3.361 | 1 | .65 | 104 40 59.22 | 11.21 |
| 840 | Lalande 39329 | 6.4 | 1 | .73 | 20 19 44.99 | +2.651 | 1 | .73 | 69 1 30.36 | -11.49 |

Nº. 815. e¹ Sagittarii. Companion 7.8 mag.

Nº. 835. Σ 2654. Companion 8.0 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | | | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | | | Pre- cession in N.P.D. |
|-----|---------------------------|------|---------------------------|-----------------------------------|-------------------------------|----|-------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|----|-------|------------------------------|
| | | | | | h. | m. | s. | | | | ° | ' | " | |
| 841 | ρ Capricorni | ... | 3 | 0.77 | 20 | 21 | 12.86 | +3.426* | 2 | 0.83 | 108 | 15 | 14.10 | -11.59* |
| 842 | B.A.C. 7063 | ... | 1 | .62 | 20 | 23 | 33.80 | 3.371 | 1 | .62 | 105 | 30 | 2.73 | 11.76 |
| 843 | ι Delphini | ... | 1 | .79 | 20 | 23 | 53.03 | 2.871 | 1 | .79 | 79 | 33 | 1.66 | 11.78 |
| 844 | ϵ Delphini | 5.0 | 3 | .70 | 20 | 26 | 48.60 | 2.866 | 4 | .71 | 79 | 8 | 59.17 | 11.98 |
| 845 | Radcliffe 4881 | 7.5 | ... | ... | 20 | 27 | 40 | ..... | 1 | .77 | 5 | 19 | 54.63 | 12.05 |
| 846 | Radcliffe 4894 | 7.3 | ... | ... | 20 | 29 | 26 | ..... | 4 | .33 | 5 | 18 | 5.90 | 12.17 |
| 847 | β Delphini | ... | ... | ... | 20 | 31 | 16 | ..... | 2 | .63 | 75 | 52 | 10.63 | 12.29 |
| 848 | ι Delphini | ... | 1 | .62 | 20 | 31 | 24.49 | 2.868 | 1 | .62 | 79 | 5 | 15.21 | 12.31 |
| 849 | τ^2 Capricorni | ... | 1 | .87 | 20 | 31 | 46.72 | 3.361 | 1 | .87 | 105 | 25 | 19.22 | 12.33 |
| 850 | W.B. (1) XX. 827 | 7.0 | 1 | .65 | 20 | 32 | 51.91 | 2.782 | 1 | .65 | 74 | 37 | 50.00 | 12.40 |
| 851 | α Delphini | ... | 2 | .79 | 20 | 33 | 24.80 | 2.781 | 2 | .79 | 74 | 33 | 29.19 | 12.45 |
| 852 | W.B. (2) XX. 1155 | 8.0 | 1 | .65 | 20 | 34 | 20.50 | 2.682 | 1 | .65 | 69 | 36 | 4.34 | 12.51 |
| 853 | α Cygni | ... | 2 | .38 | 20 | 36 | 51.76 | 2.043* | 2 | .38 | 45 | 11 | 49.09 | 12.68* |
| 854 | B.A.C. 7181 | ... | 1 | .80 | 20 | 38 | 26.01 | 3.604 | 1 | .80 | 117 | 20 | 47.75 | 12.78 |
| 855 | ϵ Aquarii | ... | 6 | .74 | 20 | 40 | 25.20 | 3.250 | 7 | .72 | 99 | 59 | 2.35 | 12.92 |
| 856 | B.A.C. 7210 | 7.0 | 1 | .62 | 20 | 42 | 3.29 | 3.608 | 1 | .62 | 117 | 51 | 39.19 | 13.03 |
| 857 | μ Aquarii | 6.0 | 2 | .72 | 20 | 45 | 25.49 | 3.238 | 2 | .72 | 99 | 29 | 1.10 | 13.26 |
| 858 | B.A.C. 7244 | 7.0 | 1 | .81 | 20 | 46 | 8.51 | 3.533 | 1 | .81 | 114 | 47 | 1.74 | 13.30 |
| 859 | 32 Vulpecule | ... | 5 | .74 | 20 | 48 | 50.92 | 2.554* | 5 | .74 | 62 | 27 | 1.76 | 13.48* |
| 860 | 16 Delphini | 6.5 | 1 | .65 | 20 | 49 | 14.83 | 2.860 | 1 | .65 | 77 | 56 | 31.19 | 13.50 |
| 861 | W.B. (2) XX. 1588 | 8.6 | 1 | .77 | 20 | 50 | 13.11 | 2.688 | 1 | .77 | 68 | 45 | 2.14 | 13.56 |
| 862 | W.B. (2) XX. 1611 | ... | 1 | .61 | 20 | 51 | 5.12 | 2.651 | 1 | .61 | 66 | 50 | 21.58 | 13.62 |
| 863 | ι Equulei | 5.8 | 1 | .62 | 20 | 52 | 22.58 | 3.006 | 1 | .62 | 86 | 13 | 1.44 | 13.70 |
| 864 | Radcliffe 5090 | 7.6 | ... | ... | 20 | 54 | 57 | ..... | 3 | .79 | 4 | 50 | 11.62 | 13.86 |
| 865 | W.B. (2) XX. 1721 | 7.3 | 1 | .65 | 20 | 55 | 46.04 | 2.709 | 1 | .65 | 69 | 25 | 12.50 | 13.92 |
| 866 | W.B. (2) XX. 1739 | 7.7 | 2 | .80 | 20 | 56 | 28.92 | 2.700 | 2 | .80 | 68 | 50 | 44.72 | 13.96 |
| 867 | θ Capricorni | ... | 4 | .73 | 20 | 58 | 24.71 | 3.376 | 4 | .73 | 107 | 45 | 46.75 | 40.09 |
| 868 | W.B. (2) XX. 1804 | 7.7 | 1 | .64 | 20 | 58 | 33.05 | 2.718 | 1 | .64 | 69 | 38 | 55.87 | 14.09 |
| 869 | A Capricorni | ... | 1 | .77 | 20 | 59 | 17.03 | 3.524 | 1 | .77 | 115 | 32 | 20.30 | 14.14 |
| 870 | B.A.C. 7340 | 7.0 | 1 | .62 | 21 | 1 | 25.60 | 3.492 | 1 | .62 | 114 | 9 | 58.58 | 14.27 |
| 871 | ν Aquarii | ... | 1 | .72 | 21 | 2 | 17.54 | 3.268 | 1 | .72 | 101 | 54 | 42.38 | 14.33 |
| 872 | W.B. (2) XXI. 39 | ... | 1 | .81 | 21 | 3 | 34.48 | 2.688 | 1 | .81 | 67 | 36 | 25.27 | 14.40 |
| 873 | B.A.C. 7356 | 7.2 | 1 | .80 | 21 | 4 | 29.88 | 2.698 | 1 | .80 | 68 | 5 | 22.01 | 14.46 |
| 874 | ζ Cygni | ... | 5 | .60 | 21 | 7 | 14.03 | 2.548* | 6 | .63 | 60 | 19 | 16.73 | 14.55* |
| 875 | 14 Aquarii | 7.2 | 2 | .78 | 21 | 9 | 5.95 | +3.227 | 2 | .78 | 99 | 46 | 13.59 | -14.74 |

No. 866. W.B. (2) XX. 1739. Companion 7.6 mag.

No. 873. B.A.C. 7356. Companion 7.5 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | Pre- cession in N.P.D. |
|-----|--------------------|------|---------------------------|-----------------------------------|-------------------------------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|------------------------------|
| | | | | | h. m. s. | s. | | | ° ' " | " |
| 876 | W.B. (2) XXI. 248 | ... | 1 | 0.79 | 21 11 28.18 | +2.740 | 1 | 0.79 | 69 43 22.60 | -14.88 |
| 877 | ε Capricorni | ... | 4 | .73 | 21 14 46.88 | 3.348 | 4 | .73 | 107 24 9.29 | 15.07 |
| 878 | B.A.C. 7424 | 6.7 | 1 | .80 | 21 16 27.41 | 3.448 | 1 | .80 | 113 19 7.81 | 15.17 |
| 879 | B.A.C. 7437 | ... | 1 | .79 | 21 17 56.65 | 2.689 | 1 | .79 | 66 18 0.14 | 15.24 |
| 880 | Lalande 41648 | 6.5 | 2 | .73 | 21 18 22.42 | 2.686 | 2 | .73 | 66 2 44.83 | 15.27 |
| 881 | B.A.C. 7444 | 6.4 | 1 | .87 | 21 18 37.14 | 2.656 | 1 | .87 | 64 24 3.10 | 15.28 |
| 882 | B.A.C. 7451 | 7.5 | 1 | .83 | 21 20 22.55 | 3.257 | 1 | .83 | 102 14 42.42 | 15.39 |
| 883 | B.A.C. 7470 | 6.7 | 1 | .62 | 21 23 19.89 | 3.295 | 1 | .62 | 104 52 33.60 | 15.55 |
| 884 | β Aquarii | ... | 5 | .79 | 21 24 30.10 | 3.163* | 5 | .79 | 96 9 32.85 | 15.62* |
| 885 | Groombridge 3548 | 7.5 | ... | ... | 21 25 48 | ..... | 5 | .64 | 3 31 24.73 | 15.69 |
| 886 | β Cephei | ... | ... | ... | 21 26 55 | ..... | 2 | .77 | 20 1 39.79 | 15.70* |
| 887 | ξ Aquarii | 6.0 | 5 | .77 | 21 30 37.02 | 3.191 | 5 | .77 | 98 27 13.72 | 15.95 |
| 888 | B.A.C. 7517 | 7.0 | 1 | .62 | 21 30 53.14 | 3.296 | 1 | .62 | 105 30 41.78 | 15.96 |
| 889 | ε Pegasi | ... | 5 | .64 | 21 37 36.22 | 2.948* | 5 | .64 | 80 44 15.68 | 16.31* |
| 890 | μ Cygni | ... | 1 | .71 | 21 38 8.89 | 2.656 | 3 | .76 | 61 51 42.58 | 16.34 |
| 891 | λ Capricorni | ... | 1 | .80 | 21 39 19.14 | 3.234 | 1 | .80 | 101 58 56.11 | 16.40 |
| 892 | δ Capricorni | ... | 2 | .85 | 21 39 38.48 | 3.302 | 2 | .85 | 106 44 3.74 | 16.41 |
| 893 | 11 Cephei | ... | ... | ... | 21 39 56 | ..... | 2 | .73 | 19 18 18.63 | 16.43 |
| 894 | 16 Pegasi | ... | 2 | .76 | 21 46 57.84 | 2.726* | 4 | .76 | 64 42 15.09 | 16.76* |
| 895 | W.B. (2) XXI. 1265 | 7.7 | 1 | .80 | 21 52 14.55 | 2.810 | 1 | .80 | 69 43 24.37 | 17.02 |
| 896 | π | 8.5 | 1 | .81 | 21 53 48.93 | 2.167 | 1 | .81 | 37 47 13.08 | 17.09 |
| 897 | B.A.C. 7678 | ... | ... | ... | 21 56 18 | ..... | 2 | .83 | 10 19 47.60 | 17.21 |
| 898 | α Aquarii | ... | ... | ... | 21 58 53 | ..... | 1 | .87 | 90 58 (14.47) | 17.31* |
| 899 | B.A.C. 7690 | 7.2 | 1 | .65 | 21 59 3.37 | 3.142 | 1 | .65 | 96 0 21.40 | 17.33 |
| 900 | ξ Cephei | ... | ... | ... | 21 59 54 | ..... | 2 | .79 | 26 1 28.72 | 17.37 |
| 901 | ι Pegasi | ... | 4 | .81 | 22 0 46.26 | 2.765 | 6 | .78 | 65 18 29.82 | 17.40 |
| 902 | B.A.C. 7729 | 6.5 | 1 | .71 | 22 3 51.45 | 3.413 | 1 | .71 | 117 48 32.45 | 17.54 |
| 903 | B.A.C. 7739 | ... | 1 | .81 | 22 5 1.60 | 3.408 | 1 | .81 | 117 44 39.75 | 17.59 |
| 904 | 41 Aquarii | 6.0 | 1 | .64 | 22 6 53.68 | 3.323 | 1 | .64 | 111 44 20.96 | 17.66 |
| 905 | θ Aquarii | ... | 1 | .77 | 22 9 45.57 | 3.170* | 1 | .77 | 98 26 57.03 | 17.75* |
| 906 | W.B. (2) XXII. 279 | 7.7 | 1 | .71 | 22 12 30.21 | 2.788 | 1 | .71 | 64 53 46.20 | 17.89 |
| 907 | γ Aquarii | ... | 3 | .78 | 22 14 44.03 | 3.092 | 3 | .78 | 92 3 40.76 | 17.98 |
| 908 | ζ Aquarii | 6.5 | 1 | .71 | 22 21 55.83 | 3.077 | 1 | .71 | 90 42 17.74 | 18.25 |
| 909 | Σ 2913 (2nd star) | 7.7 | 1 | .83 | 22 23 29.67 | +3.155 | 1 | .83 | 98 48 2.09 | 18.30 |
| 910 | Groombridge 3820 | 5.5 | ... | ... | 22 23 31 | ..... | 5 | .59 | 4 34 7.41 | -18.30 |

No. 890. μ Cygni. Companion 7.7 mag. No. 908. ζ Aquarii. Companion 6.9 mag.
No. 909. Σ 2913. Companion 8.5 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R. A. 1866, Jan. 1. | Pre- cession in R. A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | Pre- cession in N.P.D. |
|-----|------------------------------|------|---------------------------|-----------------------------------|--------------------------------|-----------------------------|-----------------------------|-----------------------------------|---------------------------------|------------------------------|
| | | | | | h. m. s. | s. | | | ° ' " | " |
| 911 | σ Aquarii | ... | 2 | 0.75 | 22 23 33.28 | +3.180 | 2 | 0.75 | 101 21 44.30 | -18.31 |
| 912 | *..... | 7.6 | 1 | .71 | 22 26 6.05 | 2.875 | 1 | .71 | 69 37 30.65 | 18.39 |
| 913 | η Aquarii | ... | 1 | .81 | 22 28 28.15 | 3.082* | 1 | .81 | 90 48 24.45 | 18.42* |
| 914 | W.B. (2) XXII. 722 | 7.1 | 1 | .88 | 22 32 1.71 | 2.884 | 1 | .88 | 69 28 7.67 | 18.60 |
| 915 | W.B. (2) XXII. 759 | ... | 2 | .86 | 22 33 30.43 | 2.870 | 2 | .86 | 67 49 12.01 | 18.65 |
| 916 | ζ Pegasi | ... | 3 | .83 | 22 34 46.76 | 2.987* | 3 | .83 | 79 52 0.75 | 18.69* |
| 917 | W.B. (2) XXII. 876 | 7.6 | 1 | .83 | 22 37 46.68 | 2.898 | 1 | .82 | 69 45 58.60 | 18.78 |
| 918 | Σ 2938 (1st star) ... | 9.6 | 1 | .71 | 22 38 9.02 | 3.098 | 1 | .71 | 93 21 23.26 | 18.79 |
| 919 | B.A.C. 7951 | ... | 1 | .77 | 22 40 55.66 | 3.110 | 1 | .77 | 94 55 23.75 | 18.87 |
| 920 | μ Pegasi | ... | 3 | .83 | 22 43 32.25 | 2.877 | 5 | .83 | 66 6 20.22 | 18.95 |
| 921 | ι Cephei | ... | ... | ... | 22 44 55 | ..... | 2 | .72 | 24 30 15.49 | 18.99 |
| 922 | B.A.C. 7975 | 6.5 | 1 | .83 | 22 46 26.60 | 2.949 | 1 | .83 | 73 52 8.82 | 19.03 |
| 923 | W.B. (2) XXII. 1086 | 7.6 | 1 | .85 | 22 47 25.63 | 2.851 | 1 | .85 | 62 5 5.83 | 19.06 |
| 924 | B.A.C. 7986 | 6.9 | 1 | .88 | 22 48 14.01 | 3.112 | 1 | .88 | 95 42 4.37 | 19.08 |
| 925 | W.B. (2) XXII. 1138 | 7.0 | 1 | .77 | 22 49 52.77 | 2.907 | 1 | .77 | 67 45 30.76 | 19.12 |
| 926 | W.B. (2) XXII. 1151 | 8.3 | 1 | .71 | 22 50 33.59 | 2.894 | 1 | .71 | 66 1 58.94 | 19.14 |
| 927 | *..... | 7.4 | 1 | .89 | 22 51 33.81 | 2.922 | 1 | .89 | 69 12 7.91 | 19.17 |
| 928 | Rumker 10773 | 8.0 | 2 | .80 | 22 52 34.33 | 2.911 | 2 | .80 | 67 28 29.48 | 19.19 |
| 929 | δ Aquarii | ... | 1 | .88 | 22 54 25.52 | 3.122 | 1 | .88 | 97 46 46.18 | 19.24 |
| 930 | W.B. (2) XXII. 1265 | ... | 1 | .83 | 22 55 48.99 | 2.917 | 1 | .83 | 67 22 48.17 | 19.27 |
| 931 | W.B. (2) XXII. 1279 | 7.0 | 2 | .81 | 22 56 31.62 | 2.937 | 2 | .81 | 69 48 3.24 | 19.29 |
| 932 | α Pegasi | ... | 2 | .12 | 22 58 5.34 | 2.983* | 2 | .12 | 75 30 53.06 | 19.31* |
| 933 | W.B. (2) XXII. 1342 | 8.0 | 1 | .81 | 22 59 19.21 | 2.869 | 1 | .81 | 59 59 57.56 | 19.36 |
| 934 | W.B. (2) XXII. 1349 | 8.0 | 3 | .87 | 22 59 36.89 | 2.942 | 3 | .87 | 69 37 39.22 | 19.37 |
| 935 | W.B. (2) XXII. 1367 | 8.0 | 2 | .76 | 23 0 4.25 | 2.873 | 2 | .76 | 60 6 11.63 | 19.38 |
| 936 | W.B. (2) XXII. 1378-9 | 6.5 | 1 | .71 | 23 0 52.23 | 2.944 | 1 | .71 | 69 35 14.44 | 19.39 |
| 937 | 57 Pegasi | 6.0 | 1 | .88 | 23 2 45.61 | 3.024 | 1 | .88 | 82 2 54.20 | 19.43 |
| 938 | W.B. (2) XXIII. 61 | 7.7 | 2 | .81 | 23 4 41.70 | 2.892 | 2 | .81 | 60 41 4.77 | 19.47 |
| 939 | Σ 2988 (1st star) .. | 8.0 | 1 | .71 | 23 4 58.58 | 3.142 | 1 | .71 | 102 39 35.87 | 19.48 |
| 940 | W.B. (2) XXIII. 169-70 | 7.0 | 2 | .72 | 23 9 21.80 | 2.941 | 2 | .72 | 65 57 32.25 | 19.57 |
| 941 | γ Piscium | ... | 5 | .84 | 23 10 13.13 | 3.106* | 5 | .84 | 87 26 57.88 | 19.57* |
| 942 | 94 Aquarii | 6.5 | 1 | .88 | 23 12 3.67 | 3.141 | 1 | .88 | 104 11 14.02 | 19.62 |
| 943 | W.B. (2) XXIII. 278 | 8.2 | 1 | .85 | 23 14 9.96 | 2.968 | 1 | .85 | 68 46 15.42 | 19.66 |
| 944 | W.B. (2) XXIII. 289 | 8.0 | 1 | .90 | 23 14 41.14 | +2.905 | 1 | .90 | 57 42 14.03 | 19.66 |
| 945 | 64 Pegasi | ... | ... | ... | 23 15 23 | ... | 4 | .76 | 58 55 15.95 | -19.68 |

No. 918. Σ 2938. Companion 9.87 mag.

No. 942. 94 Aquarii. Companion 8.0 mag.

| No. | Name of Star. | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | | | | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | | | | Pre- cession in N.P.D. |
|-----|------------------------|------|---------------------------|-----------------------------------|-------------------------------|----|-------|--------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|----|-------|--------|------------------------------|
| | | | | | h. | m. | s. | s. | | | | ° | ' | " | " | |
| 946 | W.B. (2) XXIII. 340 | 7.7 | 2 | 0.75 | 23 | 17 | 15.12 | +2.978 | | 2 | 0.75 | 69 | 22 | 40.31 | -19.71 | |
| 947 | κ Piscium | ... | 2 | .88 | 23 | 20 | 3.75 | 3.075* | | 2 | .88 | 89 | 28 | 39.61 | 19.63* | |
| 948 | W.B. (2) XXIII. 437 | 7.7 | 1 | .73 | 23 | 21 | 19.50 | 2.987 | | 1 | .73 | 69 | 22 | 29.90 | 19.77 | |
| 949 | W.B. (2) XXIII. 462 | 7.0 | 1 | .77 | 23 | 22 | 25.11 | 2.982 | | 1 | .77 | 67 | 41 | 11.68 | 19.79 | |
| 950 | Σ 3019 (2nd star) ... | 8.0 | 2 | .82 | 23 | 23 | 51.08 | 3.055 | | 2 | .82 | 85 | 29 | 20.33 | 19.81 | |
| 951 | Radcliffe 6099..... | 7.0 | 1 | .83 | 23 | 24 | 13.07 | 0.320 | | 2 | .62 | 4 | 19 | 13.24 | 19.81 | |
| 952 | W.B. (2) XXIII. 522 | 7.5 | 1 | .95 | 23 | 24 | 59.88 | 2.984 | | 1 | .95 | 66 | 37 | 36.67 | 19.82 | |
| 953 | W.B. (2) XXIII. 535 | 7.1 | 3 | .82 | 23 | 25 | 47.62 | 2.987 | | 3 | .82 | 66 | 53 | 41.34 | 19.83 | |
| 954 | W.B. (2) XXIII. 562 | 7.8 | 1 | .71 | 23 | 26 | 53.83 | 2.995 | | 1 | .71 | 68 | 24 | 37.61 | 19.85 | |
| 955 | W.B. (2) XXIII. 567 | ... | 1 | .82 | 23 | 27 | 11.88 | 3.002 | | ... | .82 | 52 | 48 |  | ..... |  |
| 956 | Radcliffe 6117 S.P.... | ... | 1 | .30 | 23 | 27 | 16.57 | 0.472 | | 1 | .29 | 4 | 10 | 53.17 | 19.85 | |
| 957 | 73 Pegasi | 6.3 | 1 | .73 | 23 | 28 | 0.89 | 2.950 | | 1 | .73 | 57 | 14 | 38.17 | 19.86 | |
| 958 | 75 Pegasi | 6.3 | 2 | .83 | 23 | 31 | 11.05 | 3.017 | | 2 | .83 | 72 | 20 | 28.93 | 19.90 | |
| 959 | ι Piscium | 5.0 | 7 | .84 | 23 | 33 | 3.54 | 3.084* | | 7 | .84 | 85 | 5 | 58.13 | 19.47* | |
| 960 | γ Cephei..... | ... | ... | ... | 23 | 33 | 52 | ..... |  | 4 | .85 | 13 | 6 | 57.22 | 20.08* | |
| 961 | W.B. (2) XXIII. 748 | 7.3 | 2 | .77 | 23 | 34 | 49.08 | 3.008 | | 2 | .77 | 66 | 31 | 6.26 | 19.93 | |
| 962 | λ Piscium | ... | 1 | .95 | 23 | 35 | 12.59 | 3.068 | | 1 | .95 | 88 | 57 | 26.21 | 19.94 | |
| 963 | W.B. (2) XXIII. 800 | 8.0 | 1 | .73 | 23 | 36 | 56.53 | 3.019 | | 1 | .73 | 68 | 48 | 8.23 | 19.96 | |
| 964 | W.B. (2) XXIII. 816 | 7.6 | 1 | .77 | 23 | 38 | 6.32 | 2.986 | | 1 | .77 | 56 | 1 | 6.40 | 19.96 | |
| 965 | W.B. (2) XXIII. 821 | 7.0 | 1 | .89 | 23 | 38 | 17.92 | 3.024 | | 1 | .89 | 69 | 21 | 11.62 | 19.97 | |
| 966 | Radcliffe 6172..... | 7.7 | 1 | .30 | 23 | 38 | 27.53 | 1.711 | | 2 | .65 | 5 | 16 | 28.83 | 19.97 | |
| 967 | W.B. (2) XXIII. 840 | 7.7 | 2 | .81 | 23 | 39 | 37.16 | 3.022 | | 2 | .81 | 67 | 17 | 39.34 | 19.98 | |
| 968 | B.A.C. 8272 | 7.0 | 1 | .71 | 23 | 41 | 21.54 | 3.056 | | 1 | .71 | 82 | 29 | 51.83 | 19.99 | |
| 969 | δ Sculptoris | ... | 3 | .89 | 23 | 41 | 56.50 | 3.133* | | 3 | .89 | 118 | 52 | 14.55 | 19.92* | |
| 970 | B.A.C. 8276 | ... | 1 | .82 | 23 | 41 | 57.73 | 3.068 | | 1 | .82 | 88 | 31 | 44.01 | 19.99 | |
| 971 | Rumker 11619 | 8.0 | 1 | .83 | 23 | 42 | 15.32 | 3.033 | | 1 | .83 | 69 | 37 | 31.78 | 19.99 | |
| 972 | 21 Piscium | 6.0 | 3 | .93 | 23 | 42 | 35.82 | 3.070 | | 3 | .93 | 89 | 40 | 2.42 | 20.00 | |
| 973 | 79 Pegasi | 7.0 | 1 | .91 | 23 | 42 | 52.71 | 3.017 | | 1 | .91 | 61 | 54 | 9.42 | 20.00 | |
| 974 | W.B. (2) XXIII. 937 | 8.0 | 2 | .79 | 23 | 44 | 40.76 | 3.027 | | 2 | .79 | 63 | 24 | 29.70 | 20.01 | |
| 975 | 22 Piscium | 6.5 | 2 | .84 | 23 | 45 | 6.28 | 3.067 | | 2 | .84 | 87 | 48 | 50.97 | 20.01 | |
| 976 | W.B. (2) XXIII. 993 | 7.8 | 1 | .71 | 23 | 48 | 1.62 | 3.044 | | 1 | .71 | 68 | 16 | 23.36 | 20.03 | |
| 977 | ψ Pegasi..... | ... | ... | ... | 23 | 50 | 56 | ..... |  | 2 | .88 | 65 | 36 | 16.48 | 20.04 | |
| 978 | Piazzixxiii. 240 (2nd) | 8.0 | 1 | .83 | 23 | 51 | 13.98 | 3.049 | | 1 | .83 | 66 | 23 | 53.36 | 20.04 | |
| 979 | W.B. (2) XXIII. 1062 | 8.0 | 1 | .81 | 23 | 51 | 37.70 | 3.050 | | 1 | .81 | 66 | 20 | 47.11 | 20.04 | |
| 980 | 27 Piscium | ... | 1 | .88 | 23 | 51 | 48.81 | +3.075 | | 1 | .88 | 94 | 17 | 57.99 | -20.04 | |

No. 950. Σ 3019. Companion 9.0 mag.

No. 978. Piazzixxiii. 240. Companion 9.5 mag.

| No. | Name of Star | Mag. | Number of Obs. of R.A. | Fraction of the Year for Mean. | Mean R.A. 1866, Jan. 1. | | | Pre- cession in R.A. | Number of Obs. of N.P.D. | Fraction of the Year for Mean. | Mean N.P.D. 1866, Jan. 1. | | | Pre- cession in N.P.D. |
|-----|------------------------|------|---------------------------|-----------------------------------|-------------------------------|----|-------|----------------------------|-----------------------------|-----------------------------------|---------------------------------|----|-------|------------------------------|
| | | | | | h. | m. | s. | | | | ° | ' | " | |
| 981 | ω Piscium | ... | 4 | 0.87 | 23 | 52 | 25.84 | +3.077* | 4 | 0.87 | 83 | 52 | 43.11 | -19.92* |
| 982 | Groombridge 4193 .. | 6.9 | ... | ... | 23 | 53 | 17 | ..... | 1 | .91 | 4 | 2 | 23.61 | 20.05 |
| 983 | W.B. (1) XXIII. 1085 | ... | 1 | .95 | 23 | 53 | 31.83 | 3.070 | 1 | .95 | 88 | 4 | 14.87 | 20.05 |
| 984 | B.A.C. 8337 | 7.0 | 1 | .77 | 23 | 53 | 32.95 | 3.052 | 1 | .77 | 63 | 49 | 32.44 | 20.05 |
| 985 | W.B. (2) XXIII. 1154-6 | 7.0 | 1 | .73 | 23 | 54 | 51.60 | 3.053 | 1 | .73 | 66 | 29 | 29.50 | 20.05 |
| 986 | Σ 3054 | 8.3 | 2 | .85 | 23 | 56 | 12.23 | 3.068 | 2 | .85 | 82 | 28 | 24.67 | 20.05 |
| 987 | W.B. (2) XXIII. 1289 | 7.5 | 3 | .89 | 23 | 59 | 9.62 | +3.069 | 3 | .89 | 65 | 49 | 42.98 | -20.06 |

No. 986. Σ 3054. Companion 10.0 mag.

Errata in the preceding Catalogue.

- No. 82. γ Trianguli.—Mean N.P.D., for 46° read 56°.
 „ 135. Name of Object.—for α Persei read σ Persei.
 „ 310. λ Geminorum.—Mean R.A., for 23^h 97 read 23^h 47.
 „ 472. γ Crateris.—Mean N.P.D., for 100° read 106°.

Table shewing approximately the excess of the Right Ascension given in the British Association Catalogue (B.A.C.) above that given by the Oxford Observations.

| Star. | Approx. Excess of B.A.C. | Original Authority for R.A. of B.A.C. | Notes. |
|------------------------------------|-----------------------------------|--|---|
| <i>d</i> Piscium | s. + 0.4 | { Various. (Bradley, Piazzi, Taylor, &c.) | { Assumed P.M. (Proper Motion) in B.A.C. + 0 ^s .005. |
| <i>ε</i> Piscium | + 0.4 | " | |
| B.A.C. 299..... | - 1.0 | Baily's Flamstead (B.F.) | |
| 36 Ceti | + 0.4 | Various. | Assumed P. M., + 0 ^s .005. |
| B.A.C. 375..... | - 1.3 | B. F. | |
| B.A.C. 455..... | - 0.8 | Bradley. | |
| B.A.C. 459..... | - 0.4 | B. F. | |
| 66 Ceti | + 0.5 | Various. | Assumed P. M., + 0 ^s .035. |
| B.A.C. 1017 | + 0.5 | Piazzi & Taylor. | " + 0 ^s .010. |
| B.A.C. 1338 | + 0.3 | " | " + 0 ^s .013. |
| B.A.C. 1340 | + 0.4 | Various. | " + 0 ^s .008. |
| <i>m</i> Tauri | + 0.4 | " | " + 0 ^s .045. |
| B.A.C. 1655 | + 0.5 | " | " + 0 ^s .015. |
| B.A.C. 1907 | + 5.2 | B. F. | |
| B.A.C. 2021 | - 1.0 | Bradley. | Assumed P. M., - 0 ^s .007. |
| B.A.C. 2140 | - 0.4 | Various. | " - 0 ^s .007. |
| B.A.C. 2271 | - 0.4 | Piazzi & Taylor. | " - 0 ^s .005. |
| B.A.C. 2433 | + 0.5 | " | " + 0 ^s .009. |
| B.A.C. 2432 | + 0.5 | Various. | " + 0 ^s .004. |
| 68 Geminorum ... | + 0.5 | " | The observed R.A. is too small. |
| <i>n</i> ² Puppis | + 0.3 | " | { Assumed P. M., - 0 ^s .007. { The B.A.C. agrees with observations of 1863. |
| <i>π</i> Geminorum ... | - 0.4 | " | |
| B.A.C. 2600 | + 0.7 | " | Assumed P. M., + 0 ^s .007. |
| B.A.C. 3022 | + 0.7 | " | " + 0 ^s .013. |
| B.A.C. 3240 | + 0.4 | " | " + 0 ^s .007. |
| B.A.C. 3258 | + 0.4 | " | " + 0 ^s .011. |
| B.A.C. 3292 | + 0.4 | " | " + 0 ^s .006. |
| B.A.C. 3333 | + 0.8 | Piazzi & Taylor. | " + 0 ^s .015. |
| B.A.C. 3340 | + 0.9 | Various. | " + 0 ^s .012. |
| B.A.C. 3356 | + 1.5 | Piazzi & Taylor. | " + 0 ^s .007. |
| B.A.C. 3420 | - 0.4 | B. F. | |
| B.A.C. 3460 | - 0.6 | Bradley. | |
| B.A.C. 3592 | + 0.6 | B. F. | |
| B.A.C. 3720 | + 0.7 | Piazzi & Taylor. | Assumed P. M., + 0 ^s .015. |
| 54 Leonis | + 0.6 | Various. | " + 0 ^s .005. |
| B.A.C. 3786 | + 0.4 | Piazzi & Taylor. | " + 0 ^s .015. |
| <i>p</i> ⁵ Leonis | + 1.0 | Various. | " + 0 ^s .011. |
| <i>o</i> Leonis..... | - 0.7 | " | |
| B.A.C. 4455 | + 0.4 | Piazzi & Taylor. | Assumed P. M., + 0 ^s .008. |

| Star. | Approx. Excess of B.A.C. | Original Authority for R.A. of B.A.C. | Notes. |
|--------------------|-----------------------------------|--|--------------------------|
| B.A.C. 4513 | s. — 0·9 | B. F. | |
| B.A.C. 4553 | + 0·4 | Various. | |
| B.A.C. 4604 | + 0·6 | Piazzi & Taylor. | Assumed P. M., + 0°·011. |
| B.A.C. 4678 | + 1·1 | B. F. | |
| A Boötis | — 0·4 | Piazzi & Taylor. | Assumed P. M., — 0°·007. |
| B.A.C. 4766 | + 0·4 | " | " + 0°·005. |
| B.A.C. 4910 | + 0·6 | Lacaille. | |
| B.A.C. 5000 | — 0·6 | B. F. | |
| B.A.C. 5020 | + 0·4 | Lacaille. | |
| B.A.C. 5045 | + 0·4 | " | |
| B.A.C. 5104 | + 0·6 | Various. | |
| B.A.C. 5128 | + 0·7 | Lacaille. | |
| B.A.C. 5167 | + 2·0 | Lacaille and others. | Assumed P. M., + 0°·047. |
| ζ Coronæ | + 0·5 | Piazzi & Taylor. | " + 0°·013. |
| B.A.C. 5228 | + 2·5 | Lacaille. | |
| θ Libræ | + 0·4 | Various. | Assumed P. M., + 0°·014. |
| B.A.C. 5345 | + 0·4 | Lacaille. | |
| B.A.C. 5608 | — 1·0 | " | |
| B.A.C. 5641 | + 0·4 | " | |
| B.A.C. 5687 | + 0·4 | " | |
| B.A.C. 5704 | + 4·2 | " | |
| B.A.C. 5767 | — 1·9 | " | |
| A Ophiuchi | + 0·5 | Various. | Assumed P. M., — 0°·032. |
| B.A.C. 5856 | + 0·5 | Piazzi & Taylor. | " + 0°·013. |
| B.A.C. 5878 | + 0·9 | Lacaille. | |
| B.A.C. 5905 | + 0·5 | Piazzi & Taylor. | Assumed P. M., + 0°·007. |
| B.A.C. 5927 | + 0·5 | " | " + 0°·016. |
| B.A.C. 6069 | + 0·4 | " | " + 0°·007. |
| B.A.C. 6072 | — 0·9 | Lacaille. | |
| 67 Ophiuchi | + 0·4 | Various. | Assumed P. M., + 0°·008. |
| B.A.C. 6287 | — 0·4 | Piazzi & Taylor. | " — 0°·005. |
| B.A.C. 6293 | + 0·9 | " | " + 0°·017. |
| B.A.C. 6304 | — 0·6 | Various. | " — 0°·019. |
| B.A.C. 6321 | — 0·5 | Lacaille. | |
| B.A.C. 6450 | + 0·9 | Piazzi & Taylor. | Assumed P. M., + 0°·013. |
| B.A.C. 6596 | + 0·6 | Various. | " + 0°·004. |
| B.A.C. 6627 | + 1·8 | Lacaille. | |
| B.A.C. 7009 | + 0·5 | Piazzi & Taylor. | Assumed P. M., + 0°·013. |
| B.A.C. 7244 | + 1·1 | Lacaille. | |
| A Capricorni | + 0·4 | Various. | |
| B.A.C. 7340 | — 0·8 | Lacaille. | |
| B.A.C. 7444 | — 0·4 | Piazzi & Taylor. | Assumed P. M., — 0°·005. |
| B.A.C. 7451 | + 0·7 | " | " + 0°·011. |

Table shewing approximately the excesses of the North Polar Distances given in the British Association Catalogue (B.A.C.) above those given by the Oxford Observations.

| Star. | Approx. Excess of B.A.C. | Original Authority for N.P.D. of B.A.C. | Notes. |
|----------------------------|-----------------------------------|--|--|
| B.A.C. 138 | + 5 | Piazzi & Taylor. | Assumed P. M., + 0".11. |
| B.A.C. 299 | + 9 | B. F. | |
| 36 Ceti..... | - 7 | Various. | Assumed P. M., - 0".04. |
| B.A.C. 375 | - 6 | B. F. | |
| v Piscium | + 5 | Various. | The observed N.P.D. appears to be 10" too small. |
| B.A.C. 439 | - 5 | Piazzi & Taylor. | |
| B.A.C. 455 | + 42 | Lacaille. | |
| 100 Piscium..... | - 4 | Various. | |
| B.A.C. 549 | - 6 | Various. | Assumed P. M., - 0".09. |
| B.A.C. 631 | + 6 | B. F. | |
| B.A.C. 632 | - 4 | Piazzi, Taylor, &c. | |
| γ Trianguli..... | + 6 | Various. | |
| B.A.C. 803 | - 9 | Piazzi, Taylor, &c. | Assumed P. M., + 0".17. |
| α Arietis | + 7 | Various. | " + 0".07. |
| 21 Persei..... | - 5 | " | The B.A.C. agrees with Robinson. |
| 7 Eridani..... | - 6 | " | Assumed P. M., - 0".09. |
| 59 Arietis..... | - 6 | " | |
| B.A.C. 1119..... | + 5 | Piazzi & Taylor. | Assumed P. M., + 0".06. |
| B.A.C. 1143..... | + 6 | " | " + 0".12. |
| α ¹ Tauri | - 7 | Various. | The observation appears to be in error. |
| 40 Tauri | + 7 | " | Assumed P. M., + 0".09. |
| B.A.C. 1281..... | - 4 | Piazzi & Taylor. | " - 0".06. |
| 56 Tauri | - 4 | Various. | |
| B.A.C. 1373..... | - 6 | Piazzi & Taylor. | |
| B.A.C. 1564..... | + 5 | Taylor, Lacaille, &c. | Assumed P. M., + 0".06. |
| 105 Tauri..... | - 4 | Various. | |
| B.A.C. 1639 | + 5 | Piazzi & Taylor. | Assumed P. M., + 0".11. |
| B.A.C. 1711..... | + 5 | " | " + 0".08. |
| B.A.C. 1860..... | - 5 | " | " - 0".14. |
| B.A.C. 1918..... | - 6 | " | " - 0".05. |
| B.A.C. 1997..... | - 8 | Taylor, Lacaille, &c. | " + 0".20. |
| B.A.C. 2140..... | - 7 | Piazzi & Taylor. | |
| B.A.C. 2173..... | + 6 | " | Assumed P. M., + 0".20. |
| B.A.C. 2189..... | + 5 | " | " + 0".07. |
| 17 Canis Majoris... | + 6 | Various. | " + 0".05. |
| 23 Monocerotis ... | + 9 | Piazzi & Taylor. | " + 0".11. |
| 24 Monocerotis ... | + 7 | Various. | " + 0".08. |
| B.A.C. 2432..... | + 5 | Piazzi & Taylor. | " + 0".13. |
| 1 Canis Minoris ... | - 5 | Various. | |

| Star. | Approx. Excess of B.A.C. | Original Authority for N.P.D. of B.A.C. | Notes. |
|---------------------------------|-----------------------------------|--|---|
| B.A.C. 2472..... | — 25 | Piazzi & Taylor. | Assumed P. M., — 0".28. |
| δ ¹ Canis Minoris... | — 5 | Various. | " — 0".05. |
| 68 Geminorum ... | — 6 | " | " — 0".04. |
| n ¹ Puppis..... | + 7 | Piazzi, Taylor, &c. | " + 0".10. |
| n ² Puppis..... | — 7 | Piazzi & Taylor. | " — 0".09. |
| B.A.C. 2503..... | — 5 | " | " — 0".14. |
| p Puppis | — 5 | Piazzi, Taylor, &c. | |
| 25 Monocerotis ... | — 6 | Various. | Assumed P. M., — 0".09. |
| k ² Puppis..... | — 6 | Piazzi, Taylor, &c. | " — 0".12. |
| B.A.C. 2600..... | — 5 | " | " — 0".13. |
| B.A.C. 2679..... | + 8 | Piazzi & Taylor. | " + 0".16. |
| 21 Cancri..... | — 5 | Various. | |
| v ¹ Cancri | + 5 | " | Assumed P. M., + 0".18. |
| c ² Cancri..... | + 5 | " | " + 0".06. |
| B.A.C. 2925..... | + 6 | " | " + 0".05. |
| 10 Hydre | — 4 | " | |
| B.A.C. 3019 | + 8 | Piazzi & Taylor. | Assumed P. M., + 0".13. |
| B.A.C. 3022..... | + 11 | " | " + 0".16. |
| B.A.C. 3093..... | — 9 | B. F. | |
| B.A.C. 3138..... | — 5 | Bradley & Taylor. | |
| B.A.C. 3255..... | — 4 | Piazzi & Taylor. | |
| 8 Leonis ... | — 8 | Various. | Assumed P. M., — 0".07. |
| B.A.C. 3333..... | — 5 | Piazzi & Taylor. | " — 0".05. |
| B.A.C. 3340 | — 11 | Taylor, Lacaille, &c. | " — 0".15. |
| B.A.C. 3460..... | — 13 | Bradley & Lalande. | " — 0".06. |
| B.A.C. 3592 | — 12 | B. F. | |
| 36 Leonis Minoris | + 5 | Various. | Assumed P. M., + 0".06. |
| B.A.C. 3720..... | + 7 | Piazzi & Taylor. | " + 0".12. |
| B.A.C. 3786 | + 8 | " | " + 0".14. |
| 52 Leonis Minoris | — 7 | Various. | [large. The observed N.P.D. is probably rather too |
| 92 Leonis..... | — 6 | " | |
| B.A.C. 3994 | + 7 | " | Assumed P. M., + 0".12. |
| B.A.C. 4003 | — 6 | Taylor, Lacaille, &c. | " — 0".19. |
| 40 Comæ..... | — 7 | Various. | |
| 58 Virginis | + 6 | " | Assumed P. M., + 0".04. |
| B.A.C. 4444 | + 9 | Piazzi & Taylor. | " + 0".11. |
| 81 Virginis ... | + 7 | Various. | " + 0".14. |
| B.A.C. 4610 | — 8 | B. F. | |
| B.A.C. 4622..... | — 5 | Piazzi & Taylor. | Assumed P. M., — 0".06. |
| Lacaille 5763 | — 24 | Lacaille. | Compared with Baily's Lacaille. |
| B.A.C. 4662 | + 6 | Piazzi & Taylor. | Assumed P. M., + 0".19. |
| B.A.C. 4678 | + 6 | B. F. | |
| B.A.C. 4910..... | + 26 | Lacaille. | |
| B.A.C. 5006 | — 5 | Taylor, Lacaille, &c. | Assumed P. M., — 0".16. |

| Star. | Approx. Excess of B.A.C. | Observed Authority for N.P.D. of B.A.C. | Notes. |
|-------------------------------|-----------------------------------|--|--|
| B.A.C. 5020..... | — 6 | Lacaille. | |
| B.A.C. 5045..... | — 21 | „ | |
| B.A.C. 5105..... | + 16 | „ | |
| B.A.C. 5128..... | + 12 | „ | |
| 29 Serpentis | — 4 | Various. | Assumed P. M., — 0".05. |
| v Serpentis | + 7 | Piazzi & Taylor. | „ + 0".10. |
| A Scorpii | + 6 | Various. | |
| B.A.C. 5345..... | + 8 | Lacaille. | |
| 46 Serpentis | + 7 | Various. | The observed N.P.D. appears to be too small. |
| B.A.C. 5395 | + 6 | Piazzi & Taylor. | Assumed P. M., + 0".05. |
| B.A.C. 5418..... | + 14 | Lacaille. | |
| B.A.C. 5528..... | + 7 | Piazzi & Taylor. | Assumed P. M., + 0".22. |
| B.A.C. 5562..... | + 12 | Lacaille. | |
| m ² Herculis | + 7 | Various. | |
| B.A.C. 5608 | — 15 | Lacaille. | |
| B.A.C. 5687..... | + 28 | „ | |
| B.A.C. 5771 | + 13 | Piazzi & Taylor. | Assumed P. M., + 0".15. |
| B.A.C. 5774 | + 5 | „ | „ + 0".12. |
| B.A.C. 5878..... | + 18 | Lacaille. | |
| B.A.C. 5905..... | + 9 | Piazzi & Taylor. | Assumed P. M., + 0".17. |
| 52 Ophiuchi..... | + 6 | Various. | „ + 0".07. |
| B.A.C. 6027 | + 10 | Piazzi & Taylor. | „ + 0".17. |
| B.A.C. 6072..... | — 12 | Lacaille. | |
| B.A.C. 6287..... | — 6 | Piazzi & Taylor. | Assumed P. M., + 0".09. |
| B.A.C. 6304 | + 7 | Various. | „ + 0".08. |
| B.A.C. 6321 | — 22 | Lacaille. | |
| B.A.C. 6358..... | + 14 | Piazzi & Taylor. | Assumed P. M., + 0".22. |
| 112 Herculis | — 7 | Various. | „ — 0".07. |
| B.A.C. 6450..... | + 4 | Piazzi & Taylor. | „ + 0".13. |
| δ ³ Lyre | — 6 | Various. | „ — 0".04. |
| 11 Aquile | — 5 | „ | „ + 0".05. |
| B.A.C. 6554..... | — 47 | Lacaille. | |
| B.A.C. 6596..... | + 11 | Various. | [by 3" or 4". The observed N.P.D. is probably too small |
| B.A.C. 6627..... | — 14 | Lacaille. | |
| B.A.C. 6664 | + 11 | Piazzi & Taylor. | Assumed P. M., + 0".13. |
| B.A.C. 6682..... | — 23 | Taylor & Lacaille. | |
| B.A.C. 6695 | + 5 | Piazzi & Taylor. | Assumed P. M., + 0".07. |
| B.A.C. 6788..... | + 7 | „ | „ + 0".17. |
| B.A.C. 6792..... | + 18 | Lacaille. | |
| B.A.C. 7009 | + 19 | Piazzi & Taylor. | Assumed P. M., + 0".12. |
| B.A.C. 7181..... | + 28 | Lacaille. | |
| B.A.C. 7244..... | + 22 | „ | |
| B.A.C. 7340..... | + 8 | „ | |
| 14 Aquarii | + 7 | Various. | Assumed P. M., + 0".08. |

| Star. | Approx. Excess of B.A.C. | Original Authority for N.P.D. of B.A.C. | Notes. |
|-------------------|-----------------------------------|--|-------------------------|
| B.A.C. 7444 | + 5 | Piazzi & Taylor. | Assumed P. M., + 0".11. |
| B.A.C. 7470 | + 6 | " | " + 0".14. |
| B.A.C. 7739 | - 5 | Taylor, Lacaille, &c. | |
| 81 Aquarii. | - 4 | Various. | Assumed P. M., - 0".06. |

GENERAL NOTES TO RIGHT ASCENSION.

The R.A.'s of Lalande 387 and 32621 given in Baily's Lalande appear to be 1^s too small.

B.A.C. 221 and B.A.C. 766. The B.A.C. assumed proper motions + 0^s.039 and + 0^s.013 appear to be confirmed.

GENERAL NOTES TO NORTH POLAR DISTANCES.

Σ 280. The observed N.P.D. is 8" greater than that given by Struve.

W.B. (2) II. 1426. The N.P.D. deduced from Weisse's Bessel is greater than the observed N.P.D. by 28". It is probable that the observation is in error by 1^{rev}. of the micrometer.

Σ 576. Differs several seconds from Struve.

Radcliffe 2684 S.P. The observed N.P.D. appears to be several seconds too small.

28 Ophiuchi. The two observations differ by 6"; the result is valueless.

δ² Lyrae. The reflexion and direct observation of this star differ by 3".6 and the resulting N.P.D. is too large by several seconds.

Σ 2426. The observed N.P.D. of this star is smaller by 9" than that given by Struve, and is probably in error.

Σ 2504. Smaller by 8" than Struve's N.P.D.

14 Aquarii. The observed N.P.D., though derived from two concordant observations, is probably too small by 3" or 4".

ψ Pegasi. The resulting N.P.D. is probably too large by 3 or 4 seconds.

Piazzi xxiii. 240. Piazzi's N.P.D. is smaller than that observed by about 14".

HORIZONTAL AND VERTICAL DIAMETERS;
AND
RIGHT ASCENSIONS AND NORTH POLAR DISTANCES
OF THE
SUN, MOON, AND PLANETS:

(THE NORTH POLAR DISTANCES BEING CORRECTED FOR FLEXURE OF THE
TELESCOPE AND THE CIRCLE, AND FOR ERROR OF COLATITUDE.)

COMPARED WITH THE NAUTICAL ALMANAC.

*Sidereal Times occupied by the Transits of the Sun's Diameter; and Vertical
Diameters of the Sun: compared with those of the Nautical Almanac.*

| Day, 1866. | Observer. | Observed Duration of Transit of Diameter. | Seconds of Nautical Almanac. | Apparent Error of Nautical Almanac. | Observed Vertical Diameter. | Seconds of Nautical Almanac. | Apparent Error of Nautical Almanac. |
|---------------|-----------|--|---------------------------------------|--|-----------------------------------|---------------------------------------|--|
| | | m. s. | s. | s. | " " | " " | " " |
| Jan. 1 | Q | 2 21'91 | 22'14 | + 0'23 | 32 34'60 | 36'40 | + 1'80 |
| 3 | Q | 2 21'80 | 21'94 | + 0'14 | 32 38'98 | 36'40 | - 2'58 |
| 6 | Q | 2 21'50 | 21'60 | + 0'10 | 32 36'77 | 36'40 | - 0'37 |
| 8 | Q | ..... | ..... | ..... | 32 29'12 | 36'20 | (+ 7'08) |
| 9 | Q | 2 21'03 | 21'18 | + 0'15 | 32 34'78 | 36'20 | + 1'42 |
| 12 | Q | 2 20'42 | 20'70 | + 0'28 | 32 35'80 | 35'80 | 0'00 |
| 15 | Q | 2 20'06 | 20'16 | + 0'10 | 32 32'95 | 35'40 | + 2'45 |
| 19 | Q | 2 19'24 | 19'38 | + 0'14 | 32 33'35 | 34'80 | + 1'45 |
| 24 | Q | 2 18'10 | 18'32 | + 0'22 | 32 32'41 | 33'80 | + 1'39 |
| 29 | Q | 2 17'16 | 17'18 | + 0'02 | 32 30'18 | 32'60 | + 2'42 |
| Feb. 5 | Q | 2 15'46 | 15'58 | + 0'12 | 32 25'44 | 30'40 | + 4'96 |
| 8 | Q | 2 14'87 | 14'88 | + 0'01 | 32 25'03 | 29'20 | + 4'17 |
| 12 | Q | 2 13'77 | 14'00 | + 0'23 | 32 27'10 | 27'80 | + 0'70 |
| 13 | Q | 2 13'73 | 13'78 | + 0'05 | 32 27'12 | 27'40 | + 0'28 |
| 15 | Q | ..... | ..... | ..... | 32 25'81 | 26'60 | + 0'79 |
| 19 | Q | 2 12'68 | 12'56 | - 0'12 | 32 25'92 | 25'00 | - 0'92 |
| 20 | Q | 2 12'27 | 12'36 | + 0'09 | 32 24'35 | 24'40 | + 0'05 |
| 21 | Q | 2 12'15 | 12'18 | + 0'03 | 32 29'01 | 24'00 | - 5'01 |
| 24 | Q | 2 11'56 | 11'62 | + 0'06 | 32 22'25 | 22'60 | + 0'35 |
| Mar. 1 | Q | 2 10'78 | 10'82 | + 0'04 | 32 16'33 | 20'40 | + 4'07 |
| 2 | Q | 2 10'54 | 10'68 | + 0'14 | 32 14'42 | 19'80 | + 5'38 |
| 3 | Q | 2 10'34 | 10'54 | + 0'20 | 32 18'63 | 19'40 | + 0'77 |

Sidereal Times occupied by the Transits of the Sun's Diameter ; and Vertical Diameters of the Sun : compared with those of the Nautical Almanac.

(continued.)

| Day, 1806. | Observer. | Observed Duration of Transit of Diameter. | Seconds of Nautical Almanac. | Apparent Error of Nautical Almanac. | Observed Vertical Diameter. | Seconds of Nautical Almanac. | Apparent Error of Nautical Almanac. |
|---------------|-----------|--|---------------------------------------|--|-----------------------------------|---------------------------------------|--|
| | | m. s. | s. | s. | ' " | " | " |
| Mar. 5 | Q | 2 10'20 | 10'28 | + 0'08 | 32 17'69 | 18'40 | + 0'71 |
| 14 | Q | 2 9'18 | 9'36 | + 0'18 | 32 11'46 | 13'60 | + 2'14 |
| 24 | Q | ..... | ..... | ..... | 32 4'04 | 8'00 | + 3'06 |
| 27 | Q | 2 8'64 | 8'88 | + 0'24 | 32 4'21 | 6'40 | + 2'19 |
| April 14 | Q | 2 9'57 | 9'84 | + 0'27 | 31 53'92 | 56'40 | + 2'48 |
| 18 | Q | 2 10'01 | 10'28 | + 0'27 | 31 51'58 | 54'40 | + 2'82 |
| 23 | Q | 2 10'90 | 10'92 | + 0'02 | 31 52'80 | 51'80 | — 1'00 |
| 24 | Q | 2 10'91 | 11'06 | + 0'15 | 31 52'76 | 51'40 | — 1'36 |
| 25 | Q | ..... | ..... | ..... | 31 49'25 | 50'80 | + 1'55 |
| 27 | Q | 2 11'23 | 11'48 | + 0'25 | 31 50'62 | 49'80 | — 0'82 |
| May 4 | Q | 2 12'38 | 12'56 | + 0'18 | 31 44'11 | 46'60 | + 2'49 |
| 7 | Q | 2 12'74 | 13'06 | + 0'32 | 31 44'73 | 45'20 | + 0'47 |
| 8 | Q | 2 13'15 | 13'22 | + 0'07 | 31 44'24 | 44'80 | + 0'56 |
| 9 | Q | 2 13'39 | 13'38 | — 0'01 | 31 43'66 | 44'20 | + 0'54 |
| 15 | Q | 2 14'28 | 14'36 | + 0'08 | 31 38'32 | 41'80 | + 3'48 |
| 17 | Q | 2 14'33 | 14'68 | + 0'35 | 31 40'83 | 41'00 | + 0'17 |
| 18 | Q | 2 14'66 | 14'84 | + 0'18 | 31 36'04 | 40'60 | + 4'56 |
| 21 | Q | 2 15'15 | 15'32 | + 0'17 | 31 40'55 | 39'60 | — 0'95 |
| 23 | Q | 2 15'32 | 15'62 | + 0'30 | 31 39'76 | 38'80 | — 0'96 |
| 25 | Q | 2 15'83 | 15'90 | + 0'07 | 31 35'17 | 38'20 | + 3'03 |
| 30 | Q | 2 16'46 | 16'56 | + 0'10 | 31 34'78 | 36'80 | + 2'02 |
| June 2 | Q | 2 16'87 | 16'92 | + 0'05 | 31 35'56 | 35'80 | + 0'24 |
| 9 | Q | 2 17'36 | 17'52 | + 0'16 | 31 31'32 | 34'40 | + 3'08 |
| 22 | Q | 2 17'85 | 17'92 | + 0'07 | 31 28'92 | 32'40 | + 3'48 |
| 23 | Q | 2 17'79 | 17'90 | + 0'11 | 31 31'77 | 32'20 | + 0'43 |
| 26 | Q | 2 17'48 | 17'82 | + 0'34 | 31 31'52 | 32'00 | + 0'48 |
| 27 | Q | 2 17'74 | 17'78 | + 0'04 | 31 29'53 | 32'00 | + 2'47 |
| 28 | Q | 2 17'77 | 17'74 | — 0'03 | 31 30'90 | 32'00 | + 1'10 |
| 29 | Q | 2 17'80 | 17'68 | — 0'12 | 31 31'74 | 32'00 | + 0'26 |
| 30 | M | 2 17'78 | 17'62 | — 0'16 | 31 34'96 | 32'00 | — 2'96 |
| July 2 | Q | 2 17'23 | 17'48 | + 0'25 | 31 32'23 | 32'00 | — 0'23 |
| 4 | Q | ... .. | .. | .. | 31 31'33 | 32'00 | + 0'67 |
| 6 | Q | .. .. | .. | .. | 31 33'11 | 32'00 | — 1'11 |
| 10 | Q | 2 16'70 | 16'68 | — 0'02 | 31 33'72 | 32'20 | — 1'52 |
| 12 | Q | 2 16'30 | 16'44 | + 0'14 | 31 36'07 | 32'40 | — 3'67 |
| 13 | Q | 2 16'38 | 16'30 | — 0'08 | 31 33'34 | 32'40 | — 0'94 |
| 16 | Q | 2 15'49 | 15'90 | + 0'41 | 31 28'09 | 32'80 | + 4'71 |
| 18 | Q | 2 15'57 | 15'60 | + 0'03 | 31 30'31 | 33'00 | + 2'69 |
| 21 | Q | 2 15'20 | 15'14 | — 0'06 | ..... | .. | ..... |

Sidereal Times occupied by the Transits of the Sun's Diameter; and Vertical Diameters of the Sun: compared with those of the Nautical Almanac.

(concluded.)

| Day, 1866. | Observer. | Observed Duration of Transit of Diameter. | Seconds of Nautical Almanac. | Apparent Error of Nautical Almanac. | Observed Vertical Diameter. | Seconds of Nautical Almanac. | Apparent Error of Nautical Almanac. |
|---------------|-----------|--|---------------------------------------|--|-----------------------------------|---------------------------------------|--|
| | | m. s. | s. | s. | " " | " " | " " |
| July 23 | Q | 2 14'41 | 14'82 | + 0'41 | 31 35'54 | 33'80 | - 1'74 |
| 30 | Q | 2 13'42 | 13'62 | + 0'20 | 31 34'00 | 35'20 | + 1'20 |
| Aug. 1 | Q | 2 13'18 | 13'28 | + 0'10 | 31 32'51 | 35'80 | + 3'29 |
| 4 | Q | 2 12'82 | 12'76 | - 0'06 | 31 34'86 | 36'60 | + 1'74 |
| 7 | Q | 2 12'00 | 12'24 | + 0'24 | ..... | ..... | ..... |
| 11 | Q | 2 11'36 | 11'56 | + 0'20 | 31 38'90 | 38'60 | - 0'30 |
| 14 | Q | 2 11'14 | 11'08 | - 0'06 | 31 36'73 | 39'60 | + 2'67 |
| 18 | Q | ..... | ..... | ..... | 31 43'26 | 41'20 | - 2'06 |
| 22 | Q | 2 9'96 | 9'92 | - 0'04 | 31 41'23 | 42'80 | + 1'57 |
| 23 | Q | 2 9'82 | 9'78 | - 0'04 | 31 38'80 | 43'20 | + 4'40 |
| Sept. 19 | Q | 2 8'01 | 8'10 | + 0'09 | 31 60'86 | 56'20 | - 4'66 |
| 25 | Q | 2 7'85 | 8'30 | + 0'45 | 31 55'06 | 59'40 | + 4'34 |
| 26 | Q | 2 8'12 | 8'36 | + 0'24 | 31 56'91 | 60'00 | + 3'09 |
| Oct. 8 | Q | 2 9'17 | 9'44 | + 0'27 | ..... | ..... | ..... |
| 13 | Q | 2 10'01 | 10'16 | + 0'15 | 32 5'95 | 9'20 | + 3'25 |
| 15 | Q | 2 10'55 | 10'48 | - 0'07 | 32 11'24 | 10'40 | - 0'84 |
| 16 | Q | 2 10'68 | 10'64 | - 0'04 | 32 6'59 | 11'00 | + 4'41 |
| 17 | Q | 2 10'59 | 10'82 | + 0'23 | 32 10'69 | 11'40 | + 0'71 |
| 24 | Q | 2 11'97 | 12'16 | + 0'19 | 32 16'10 | 15'40 | - 0'70 |
| 31 | Q | 2 13'55 | 13'66 | + 0'11 | 32 18'39 | 18'80 | + 0'41 |
| Nov. 6 | Q | 2 14'87 | 15'04 | + 0'17 | 32 21'39 | 21'80 | + 0'41 |
| 10 | Q | 2 15'74 | 16'00 | + 0'26 | 31 22'58 | 23'80 | + 1'22 |
| 17 | Q | 2 17'57 | 17'66 | + 0'09 | 31 27'67 | 26'60 | - 1'07 |
| 19 | Q | 2 17'81 | 18'12 | + 0'31 | 31 27'79 | 27'40 | - 0'39 |
| 20 | Q | 2 18'12 | 18'36 | + 0'24 | 31 26'78 | 27'80 | + 1'02 |
| 26 | Q | 2 19'36 | 19'64 | + 0'28 | 31 24'66 | 30'20 | + 5'54 |
| 30 | Q | 2 20'53 | 20'40 | - 0'13 | ..... | ..... | ..... |
| Dec. 8 | Q | 2 21'46 | 21'64 | + 0'18 | 32 29'71 | 33'40 | + 3'69 |
| 10 | Q | 2 21'72 | 21'88 | + 0'16 | 32 30'79 | 34'00 | + 3'21 |
| 19 | Q | 2 22'37 | 22'54 | + 0'17 | 32 34'64 | 35'80 | + 1'16 |
| 20 | Q | 2 22'31 | 22'56 | + 0'25 | 32 32'67 | 35'80 | + 3'13 |
| 31 | Q | 2 22'40 | 22'24 | - 0'16 | 32 34'57 | 36'40 | + 1'83 |

Sidereal Times occupied by the Transits of the Moon's Diameter ; and Vertical Diameters of the Moon : compared with those of the Nautical Almanac.

| Day, 1800. | Observer. | Observed Duration of Transit of Diameter. | Seconds of Nautical Almanac. | Apparent Error of Nautical Almanac. | Observed Vertical Diameter. | Seconds of Nautical Almanac. | Apparent Error of Nautical Almanac. |
|---------------|-----------|--|---------------------------------------|--|-----------------------------------|---------------------------------------|--|
| | | m. s. | s. | s. | ' " | " | " |
| Jan. 1 | Q | ..... | ..... | ..... | 32 63'89 | 54'24 | (-9'65) |
| 29 | Q | ..... | ..... | ..... | 31 30'63 | 29'16 | -1'47 |
| Feb. 23 | Q | ..... | ..... | ..... | 31 50'62 | 49'28 | -1'34 |
| 24 | Q | ..... | ..... | ..... | 31 32'14 | 33'86 | +1'72 |
| 25 | M | ..... | ..... | ..... | 31 21'48 | 17'70 | -3'78 |
| 27 | Q | ..... | ..... | ..... | 30 46'01 | 45'20 | -0'81 |
| 28 | Q | 2 7'15 | 7'14 | -0'01 | 30 32'31 | 29'10 | -3'21 |
| May 28 | Q | 2 7'69 | 7'50 | -0'19 | 29 32'79 | 31'34 | -1'45 |
| 29 | Q | 2 8'75 | 9'00 | +0'25 | 29 37'05 | 37'32 | +0'27 |
| June 26 | Q | ..... | ..... | ..... | 29 52'31 | 47'86 | -4'45 |
| 27 | Q | 2 11'34 | 11'12 | -0'22 | 29 56'27 | 59'40 | +3'13 |
| Aug. 21 | Q | ..... | ..... | ..... | 30 0'20 | 7'90 | (+7'70) |
| 22 | Q | ..... | ..... | ..... | 30 23'44 | 27'60 | +4'16 |
| 24 | Q | ..... | ..... | ..... | 31 12'36 | 12'36 | 0'00 |
| Sept. 24 | Q | 2 15'92 | 15'78 | -0'14 | 32 35'29 | 37'20 | +1'91 |

Right Ascensions and North Polar Distances of the Centre of Sun.

| Oxford Mean Solar Time of Transit of Centre. | | | | Observer. | R.A. from Observation. | Seconds of Tabular R.A. | Apparent Error of Tabular R.A. | N.P.D. from Observation. | Seconds of Tabular N.P.D. | Apparent Error of Tabular N.P.D. |
|--|------------|------------|------------|-------------|------------------------------|----------------------------------|---|--------------------------------|------------------------------------|---|
| 1866. d. | h. | m. | s. | | h. m. s. | s. | s. | ° ' " | " | " |
| Jan. 1 | 0 | 3 | 52.4 | Q | 18 47 32.40 | 32.24 | — 0.16 | 113 0 11.15 | 15.35 | + 4.20 |
| | 3 | 0 | 4 48.2 | Q | 18 56 21.57 | 21.31 | — 0.26 | 112 49 16.29 | 18.96 | + 2.67 |
| | 6 | 0 | 6 9.0 | Q | 19 9 31.88 | 32.02 | + 0.14 | 112 29 28.82 | 30.37 | + 1.55 |
| | 8 | 0 | 7 0.7 | Q | 19 18 17.03 | 16.90 | — 0.13 | 112 14 0.98 | 4.39 | + 3.41 |
| | 9 | 0 | 7 25.7 | Q | 19 22 38.52 | 38.58 | + 0.06 | 112 5 38.41 | 41.90 | + 3.49 |
| | 12 | 0 | 8 37.6 | Q | 19 35 40.49 | 40.34 | — 0.15 | 111 37 56.40 | 59.83 | + 3.43 |
| | 15 | 0 | 9 44.1 | Q | 19 48 36.79 | 36.63 | — 0.16 | 111 6 26.90 | 31.37 | + 4.47 |
| | 19 | 0 | 11 3.2 | Q | 20 5 42.27 | 42.13 | — 0.14 | 110 18 53.13 | 55.84 | + 2.71 |
| | 24 | 0 | 12 24.8 | Q | 20 26 47.22 | 46.83 | — 0.39 | 109 10 52.77 | 54.75 | + 1.98 |
| | 29 | 0 | 13 26.3 | Q | 20 47 31.49 | 31.18 | — 0.31 | 107 54 5.46 | 7.50 | + 2.04 |
| Feb. 5 | 0 | 14 17.7 | Q | 21 15 58.63 | 58.58 | — 0.05 | 105 53 16.55 | 24.57 | (+ 8.02) | |
| | 8 | 0 | 14 27.7 | Q | 21 27 58.34 | 58.26 | — 0.08 | 104 57 25.79 | 26.70 | + 0.91 |
| | 12 | 0 | 14 30.1 | Q | 21 43 47.16 | 46.97 | — 0.19 | 103 39 19.04 | 19.40 | + 0.36 |
| | 13 | 0 | 14 28.9 | Q | 21 47 42.20 | 42.26 | + 0.06 | 103 19 9.26 | 12.95 | + 3.69 |
| | 15 | 0 | 14 24.2 | Q | 21 55 | 30.62 | ..... | 102 38 17.28 | 21.46 | + 4.18 |
| | 19 | 0 | 14 6.0 | Q | 22 10 58.76 | 58.62 | — 0.14 | 101 14 12.41 | 16.51 | + 4.10 |
| | 20 | 0 | 13 59.7 | Q | 22 14 48.93 | 48.86 | — 0.07 | 100 52 46.69 | 48.07 | + 1.38 |
| | 21 | 0 | 13 52.7 | Q | 22 18 38.50 | 38.42 | — 0.08 | 100 31 5.05 | 9.64 | + 4.59 |
| | 24 | 0 | 13 27.9 | Q | 22 30 3.37 | 3.22 | — 0.15 | 99 25 15.54 | 18.64 | + 3.10 |
| Mar. 1 | 0 | 12 34.6 | Q | 22 48 52.71 | 52.51 | — 0.20 | 97 32 46.55 | 50.91 | + 4.36 | |
| | 2 | 0 | 12 22.3 | Q | 22 52 36.96 | 36.74 | — 0.22 | 97 9 59.90 | 60.39 | + 0.49 |
| | 3 | 0 | 12 9.6 | Q | 22 56 20.57 | 20.49 | — 0.08 | 96 47 3.40 | 3.77 | + 0.37 |
| | 5 | 0 | 11 42.7 | Q | 23 3 46.91 | 46.61 | — 0.30 | 96 0 52.99 | 54.03 | + 1.04 |
| | 14 | 0 | 9 23.2 | Q | 23 36 55.82 | 55.75 | — 0.07 | 92 29 43.18 | 46.93 | + 3.75 |
| | 24 | 0 | 6 25.4 | Q | 0 13 | 22.91 | ..... | 88 32 55.61 | 59.04 | + 3.43 |
| | 27 | 0 | 5 29.8 | Q | 0 24 16.85 | 16.87 | + 0.02 | 87 22 21.52 | 23.17 | + 1.65 |
| Apr. 14 | 0 | 0 17.0 | Q | 1 30 1.35 | 1.13 | — 0.22 | 80 34 12.69 | 16.05 | + 3.36 | |
| | 17 | 23 59 19.3 | Q | 1 44 49.44 | 49.44 | 0.00 | 79 9 11.28 | 14.30 | + 3.02 | |
| | 22 | 23 58 15.8 | Q | 2 3 28.87 | 28.60 | — 0.27 | 77 26 59.56 | 61.01 | + 1.45 | |
| | 23 | 23 58 4.4 | Q | 2 7 13.78 | 13.71 | — 0.07 | 77 7 7.32 | 10.35 | + 3.03 | |
| | 24 | 23 57 53.4 | Q | 2 10 59.25 | 59.27 | + 0.02 | 76 47 31.83 | 32.39 | + 0.56 | |
| | 26 | 23 57 32.9 | Q | 2 18 | 31.83 | ..... | 76 8 53.64 | 55.89 | + 2.25 | |
| May 3 | 23 56 37.5 | Q | 2 45 12.29 | 12.13 | — 0.16 | 74 1 13.32 | 14.25 | + 0.93 | | |
| | 6 | 23 56 22.1 | Q | 2 56 46.27 | 46.36 | + 0.09 | 73 10 22.11 | 21.42 | — 0.69 | |
| | 7 | 23 56 18.1 | Q | 3 0 39.00 | 38.94 | — 0.06 | 72 53 53.97 | 56.88 | + 2.91 | |
| | 8 | 23 56 14.7 | Q | 3 4 32.39 | 32.12 | — 0.27 | 72 37 46.38 | 49.34 | + 2.96 | |
| | 14 | 23 56 6.9 | Q | 3 28 3.69 | 3.60 | — 0.09 | 71 7 18.56 | 17.92 | — 0.64 | |
| | 16 | 23 56 8.9 | Q | 3 35 58.84 | 58.72 | — 0.12 | 70 39 35.87 | 37.06 | + 1.19 | |
| | 17 | 23 56 10.8 | Q | 3 39 57.23 | 57.11 | — 0.12 | 70 26 18.40 | 15.83 | — 2.57 | |

Jan. 8. The 2 L. only, observed in R.A.

April 24. 23^h. The 1 L. only, observed in R.A.

Right Ascensions and North Polar Distances of the Centre of the Sun.

(continued.)

| Oxford Mean Solar Time of Transit of Centre. | Observer. | R.A. from Observation. | Seconds of Tabular R.A. | Apparent Error of Tabular R.A. | N.P.D. from Observation. | Seconds of Tabular N.P.D. | Apparent Error of Tabular N.P.D. |
|--|-----------|------------------------------|----------------------------------|---|--------------------------------|------------------------------------|---|
| 1866. d. h. m. s. | | h. m. s. | s. | s. | ° ' " | " | " |
| May 20 23 56 19 ⁴ | Q | 3 51 55 ³⁰ | 55 ⁴⁸ | + 0 ¹⁸ | 69 48 13 ¹⁰ | 13 ⁰⁴ | - 0 ⁰⁶ |
| 22 23 56 27 ⁸ | Q | 3 59 57 ⁰⁷ | 56 ⁹⁸ | - 0 ⁰⁹ | 69 24 35 ⁴⁵ | 34 ²⁹ | - 1 ¹⁶ |
| 24 23 56 38 ² | Q | 4 8 0 ⁶⁴ | 0 ⁴⁹ | - 0 ¹⁵ | 69 2 20 ³⁴ | 20 ²⁴ | - 0 ¹⁰ |
| 29 23 57 12 ⁵ | Q | 4 28 17 ⁶⁹ | 17 ⁶⁸ | - 0 ⁰¹ | 68 13 8 ⁶³ | 7 ⁸³ | - 0 ⁸⁰ |
| June 1 23 57 38 ⁴ | Q | 4 40 33 ⁴⁴ | 33 ³⁵ | - 0 ⁰⁹ | 67 48 5 ⁷⁴ | 6 ⁵⁷ | + 0 ⁸³ |
| 8 23 58 52 ¹ | Q | 5 9 23 ¹⁵ | 23 ¹⁰ | - 0 ⁰⁵ | 67 3 20 ⁶⁷ | 21 ⁹⁵ | + 1 ²⁸ |
| 22 0 1 36 ⁵ | Q | 6 3 23 ¹⁹ | 23 ²¹ | + 0 ⁰² | 66 32 53 ⁷⁰ | 53 ⁶⁷ | - 0 ⁰³ |
| 23 0 1 49 ⁴ | Q | 6 7 32 ⁶² | 32 ⁶⁹ | + 0 ⁰⁷ | 66 33 25 ⁷⁸ | 26 ²⁵ | + 0 ⁴⁷ |
| 26 0 2 27 ⁴ | Q | 6 20 0 ⁶² | 0 ⁵³ | - 0 ⁰⁹ | 66 37 32 ⁶⁸ | 32 ³² | - 0 ³⁶ |
| 27 0 2 39 ⁹ | Q | 6 24 9 ⁷³ | 9 ⁵⁵ | - 0 ¹⁸ | 66 39 43 ⁷⁹ | 43 ⁷⁰ | - 0 ⁰⁹ |
| 28 0 2 52 ¹ | Q | 6 28 18 ⁴⁶ | 18 ⁴¹ | - 0 ⁰⁵ | 66 42 19 ²⁹ | 19 ⁵⁸ | + 0 ²⁹ |
| 29 0 3 4 ² | Q | 6 32 27 ²⁴ | 27 ⁰⁷ | - 0 ¹⁷ | 66 45 18 ⁸⁶ | 20 ⁰⁷ | + 1 ²¹ |
| 30 0 3 16 ¹ | M | 6 36 35 ²⁵ | 35 ⁵³ | + 0 ²⁸ | 66 48 46 ⁶⁵ | 45 ⁰⁶ | - 1 ⁵⁹ |
| July 2 0 3 39 ¹ | Q | 6 44 51 ⁶¹ | 51 ⁷⁷ | + 0 ¹⁶ | 66 56 47 ⁶⁰ | 48 ⁰³ | + 0 ⁴³ |
| 4 0 4 1 ² | Q | 6 53 6 ⁶⁸ | 6 ⁹⁸ | + 0 ³⁰ | 67 6 28 ⁹⁶ | 27 ⁷⁰ | - 1 ²⁶ |
| 6 0 4 22 ⁰ | Q | 7 1 21 ⁴⁷ | 21 ⁰¹ | - 0 ⁴⁶ | 67 17 44 ⁸⁵ | 43 ²⁶ | - 1 ⁵⁹ |
| 10 0 4 59 ⁷ | Q | 7 17 45 ¹⁷ | 44 ⁹⁶ | - 0 ²¹ | 67 44 56 ⁶³ | 57 ¹⁹ | + 0 ⁵⁶ |
| 12 0 5 16 ¹ | Q | 7 25 54 ⁶⁰ | 54 ⁵⁴ | - 0 ⁰⁶ | 68 0 50 ²⁵ | 52 ⁷⁵ | + 2 ⁵⁰ |
| 13 0 5 23 ⁶ | Q | 7 29 58 ⁶⁸ | 58 ⁶³ | - 0 ⁰⁵ | 68 9 23 ³¹ | 24 ⁶⁴ | + 1 ³³ |
| 16 0 5 43 ² | Q | 7 42 8 ¹⁷ | 8 ⁰⁰ | - 0 ¹⁷ | 68 37 10 ⁵¹ | 13 ⁴⁷ | + 2 ⁹⁶ |
| 18 0 5 53 ⁷ | Q | 7 50 11 ⁶⁸ | 11 ⁶¹ | - 0 ⁰⁷ | 68 57 34 ⁶⁷ | 35 ⁵² | + 0 ⁸⁵ |
| 21 0 6 5 ³ | Q | 8 2 13 ¹³ | 12 ⁸⁶ | - 0 ²⁷ | 69 30 48 ⁴⁹ | 47 ⁷³ | - 0 ⁷⁶ |
| 23 0 6 10 ¹ | Q | 8 10 11 ⁰⁰ | 10 ⁸⁰ | - 0 ²⁰ | 69 54 39 ⁷³ | 37 ⁴⁷ | - 2 ²⁶ |
| 30 0 6 8 ³ | Q | 8 37 44 ⁸⁸ | 44 ⁹⁰ | + 0 ⁰² | 71 28 31 ²⁷ | 29 ⁹⁴ | - 1 ³³ |
| Aug 1 0 6 2 ⁴ | Q | 8 45 32 ²⁵ | 32 ¹⁰ | - 0 ¹⁵ | 71 58 5 ¹⁴ | 7 ³⁸ | + 2 ²⁴ |
| 4 0 5 49 ² | Q | 8 57 8 ⁵⁷ | 8 ⁵⁴ | - 0 ⁰³ | 72 44 44 ¹⁰ | 45 ⁸⁶ | + 1 ⁷⁶ |
| 7 0 5 30 ⁸ | Q | 9 8 40 ⁰⁰ | 39 ⁷⁶ | - 0 ²⁴ | 73 33 | 56 ¹³ | ..... |
| 11 0 4 58 ³ | Q | 9 23 53 ²⁷ | 53 ³⁵ | + 0 ⁰⁸ | 74 43 7 ⁴⁷ | 11 ¹⁴ | + 3 ⁶⁷ |
| 14 0 4 27 ⁹ | Q | 9 35 12 ⁵² | 12 ⁵³ | + 0 ⁰¹ | 75 37 41 ¹⁸ | 42 ⁴⁹ | + 1 ³¹ |
| 18 0 3 39 ⁷ | Q | 9 50 10 ⁴⁶ | 10 ⁴² | - 0 ⁰⁴ | 76 53 30 ⁷¹ | 34 ⁴⁷ | + 3 ⁷⁶ |
| 22 0 2 43 ³ | Q | 10 5 0 ¹⁵ | 0 ⁰⁸ | - 0 ⁰⁷ | 78 12 43 ⁷⁰ | 45 ²³ | + 1 ⁵³ |
| 23 0 2 28 ⁰ | Q | 10 8 41 ³³ | 41 ³¹ | - 0 ⁰² | 78 33 2 ⁴⁴ | 1 ⁵⁸ | - 0 ⁸⁶ |
| Sept. 18 23 53 45 ⁴ | Q | 11 46 24 ³³ | 24 ¹⁸ | - 0 ¹⁵ | 88 31 36 ²⁰ | 34 ⁵⁹ | - 1 ⁶¹ |
| 24 23 51 39 ⁸ | Q | 12 7 57 ⁶⁴ | 57 ⁵⁷ | - 0 ⁰⁷ | 90 51 45 ⁴⁰ | 47 ⁵² | + 2 ¹² |
| 25 23 51 19 ⁴ | Q | 12 11 33 ⁸⁵ | 33 ⁵⁹ | - 0 ²⁶ | 91 15 11 ³⁰ | 11 ⁶³ | + 0 ³³ |
| Oct. 7 23 47 35 ⁴ | Q | 12 55 7 ⁶⁴ | 7 ⁵⁹ | - 0 ⁰⁵ | 95 54 1 ⁹⁷ | 3 ²² | + 1 ²⁵ |

July 4 and 6. The 1 L. only, observed in R.A.

July 21, and Oct. 7. 23^b. The N. L. only, observed in N.P.D.

Aug. 18. The 2 L. only, observed in R.A.

Right Ascensions and North Polar Distances of the Centre of the Sun.

(concluded.)

| Oxford Mean Solar Time of Transit of Centre. | Observer. | R.A. from Observation. | Seconds of Tabular R.A. | Apparent Error of Tabular R.A. | N.P.D. from Observation. | Seconds of Tabular N.P.D. | Apparent Error of Tabular N.P.D. |
|--|-----------|------------------------------|----------------------------------|---|--------------------------------|------------------------------------|---|
| 1866. d. h. m. s. | | h. m. s. | s. | s. | ° ' " | " | " |
| Oct. 8 23 47 19.1 | Q | 12 58 47.96 | 47.82 | — 0.14 | 96 16 | 56.60 | ..... |
| 12 23 46 18.6 | Q | 13 13 | 33.39 | ..... | 97 47 34.84 | 36.72 | + 1.88 |
| 14 23 45 51.3 | Q | 13 20 59.20 | 59.19 | — 0.01 | 98 32 18.77 | 19.07 | + 0.30 |
| 15 23 45 38.5 | Q | 13 24 43.10 | 42.88 | — 0.22 | 98 54 26.69 | 29.65 | + 2.96 |
| 16 23 45 26.3 | Q | 13 28 27.35 | 27.16 | — 0.19 | 99 16 31.99 | 32.42 | + 0.43 |
| 23 23 44 17.7 | Q | 13 54 54.20 | 54.20 | 0.00 | 101 46 44.15 | 43.59 | — 0.56 |
| 30 23 43 43.6 | Q | 14 21 56.00 | 55.97 | — 0.03 | 104 8 4.91 | 8.09 | + 3.18 |
| Nov. 5 23 43 45.7 | Q | 14 45 37.42 | 37.32 | — 0.10 | 106 0 38.36 | 38.38 | + 0.02 |
| 9 23 44 3.7 | Q | 15 1 41.64 | 41.68 | + 0.04 | 107 10 26.09 | 24.04 | — 2.05 |
| 11 23 44 17.8 | Q | 15 9 48.74 | 48.91 | + 0.17 | 107 43 | 32.62 | ..... |
| 16 23 45 7.6 | Q | 15 30 21.60 | 21.54 | — 0.06 | 109 0 53.06 | 53.28 | + 0.22 |
| 18 23 45 33.2 | Q | 15 38 40.48 | 40.33 | — 0.15 | 109 29 25.53 | 29.03 | + 3.50 |
| 19 23 45 47.2 | Q | 15 42 51.25 | 50.93 | — 0.32 | 109 43 13.93 | 15.25 | + 1.32 |
| 25 23 47 28.0 | Q | 16 8 11.59 | 11.33 | — 0.26 | 110 58 7.19 | 8.48 | + 1.29 |
| 29 23 48 50.3 | Q | 16 25 20.34 | 20.11 | — 0.23 | 111 40 17.91 | 17.15 | — 0.76 |
| Dec. 7 23 52 6.0 | Q | 17 0 8.88 | 8.84 | — 0.04 | 112 44 22.84 | 26.22 | + 3.38 |
| 9 23 53 0.2 | Q | 17 8 56.33 | 56.26 | — 0.07 | 112 56 2.88 | 4.73 | + 1.85 |
| 18 23 57 19.6 | Q | 17 48 45.34 | 45.43 | + 0.09 | 113 25 36.54 | 43.95 | (+ 7.41) |
| 19 23 57 49.4 | Q | 17 53 11.95 | 11.83 | — 0.12 | 113 26 37.14 | 41.35 | + 4.21 |
| 31 0 3 15.2 | Q | 18 42 0.66 | 0.61 | — 0.05 | 113 6 5.35 | 8.57 | + 3.22 |

Oct. 8. 23^h. The 1 L. only, observed in R.A.

Nov. 11. 23^h. The 2 L. only, observed in R.A.

Nov. 23. 23^h, and 29. 23^h. The N. L. only, observed in N.P.D.

Right Ascensions and North Polar Distances of the Centre of the Moon.

| Oxford Mean Solar Time of Transit of Centre. | Observer. | R.A. from Observation. | Seconds of Tabular R.A. | Apparent Error of Tabular R.A. | Limbs observed. | N.P.D. from Observation. | Seconds of Tabular N.P.D. | Apparent Error of Tabular N.P.D. |
|--|-----------|------------------------------|----------------------------------|---|--------------------|--------------------------------|------------------------------------|---|
| 1866. d. b. m. s. | | h. m. s. | s. | s. | | ° ' " | " | " |
| Jan. 1 12 42 50.4 | Q | 7 28 34.83 | 34.96 | + 0.13 | N&S | 73 9 30.39 | 33.74 | + 3.35 |
| 23 5 49 54.2 | Q | 2 1 15.02 | 14.95 | - 0.07 | S | 79 15 30.64 | 30.94 | + 0.30 |
| 25 7 39 58.8 | Q | 3 59 30.83 | 30.63 | - 0.20 | S | 73 11 25.72 | 26.34 | + 0.62 |
| 29 11 24 38.4 | Q | 8 0 33.54 | 33.41 | - 0.13 | N&S | 74 24 49.46 | 50.94 | + 1.48 |
| Feb. 21 5 36 9.1 | Q | 3 41 47.76 | 47.46 | - 0.30 | S | 74 3 56.13 | 55.00 | - 1.13 |
| 23 7 28 40.7 | Q | 5 42 30.95 | 30.75 | - 0.20 | N&S | 71 34 50.39 | 51.46 | + 1.07 |
| 24 8 24 3.7 | Q | 6 41 59.62 | 59.44 | - 0.18 | N&S | 72 5 36.38 | 38.79 | + 2.41 |
| 25 9 17 50.0 | M | 7 39 50.78 | 50.75 | - 0.03 | N&S | 73 41 2.41 | 4.66 | + 2.25 |
| 27 10 58 52.0 | Q | 9 29 2.98 | 2.97 | - 0.01 | N&S | 79 23 11.90 | 14.31 | + 2.41 |
| 28 11 46 9.1 | Q | 10 20 24.42 | 24.56 | + 0.14 | N&S | 83 3 52.83 | 58.94 | + 6.11 |
| Mar. 27 9 42 59.6 | Q | 10 3 21.53 | 21.55 | + 0.02 | N | 81 50 3.28 | 7.98 | + 4.70 |
| Apr. 20 5 8 28.4 | Q | 7 2 42.49 | 42.33 | - 0.16 | N | 72 37 13.44 | 16.17 | + 2.73 |
| 21 6 2 26.6 | Q | 8 0 46.12 | 45.94 | - 0.18 | N | 74 34 38.64 | 40.67 | + 2.03 |
| 23 7 41 22.0 | Q | 9 47 50.89 | 50.80 | - 0.09 | N | 80 41 54.21 | 58.05 | + 3.84 |
| 24 8 27 9.9 | Q | 10 37 42.91 | 42.87 | - 0.04 | N | 84 24 59.07 | 61.36 | + 2.29 |
| 25 9 11 23.2 | Q | 11 25 59.99 | 60.07 | + 0.08 | N | 88 19 0.19 | 0.80 | + 0.61 |
| May 21 6 24 40.2 | Q | 10 21 20.03 | 20.01 | - 0.02 | N | 82 59 54.13 | 55.37 | + 1.24 |
| 22 7 9 51.8 | Q | 11 10 35.59 | 35.62 | + 0.03 | N | 86 54 35.50 | 35.85 | + 0.35 |
| 23 7 53 35.9 | Q | 11 58 23.49 | 23.44 | - 0.05 | N | 90 52 18.10 | 19.12 | + 1.02 |
| 24 8 36 39.4 | Q | 12 45 30.59 | 30.68 | + 0.09 | N | 94 44 5.74 | 8.42 | + 2.68 |
| 26 11 34 7.9 | Q | 15 59 14.44 | 14.64 | + 0.20 | N&S | 106 32 7.19 | 9.02 | + 1.83 |
| 29 12 21 20.2 | Q | 16 50 31.00 | 31.12 | + 0.12 | N&S | 107 55 38.91 | 39.33 | + 0.42 |
| June 19 5 50 23.7 | Q | 11 41 18.01 | 17.86 | - 0.15 | N | 89 12 25.79 | 26.15 | + 0.46 |
| 22 8 0 58.5 | Q | 14 4 3.92 | 3.81 | - 0.11 | N | 100 23 36.41 | 38.77 | + 2.36 |
| 23 8 45 14.4 | Q | 14 52 23.65 | 23.86 | + 0.21 | N | 103 22 43.93 | 45.26 | + 1.33 |
| 25 10 17 30.4 | Q | 16 32 47.97 | 48.35 | + 0.38 | N | 107 29 35.67 | 37.96 | + 2.29 |
| 26 11 5 36.4 | Q | 17 24 58.45 | 58.55 | + 0.10 | N&S | 108 23 25.53 | 25.04 | - 0.49 |
| 27 11 54 40.2 | Q | 18 18 6.87 | 6.79 | - 0.08 | N&S | 108 23 34.31 | 35.43 | + 1.12 |
| 28 12 44 13.4 | Q | 19 11 44.69 | 44.88 | + 0.19 | N | 107 27 50.61 | 53.18 | + 2.57 |
| July 18 5 13 7.3 | Q | 12 58 15.59 | 15.62 | + 0.03 | N | 95 16 1.18 | 2.10 | + 0.92 |
| 21 7 25 57.6 | Q | 15 23 17.43 | 17.73 | + 0.30 | N | 104 45 35.61 | 31.66 | - 3.95 |
| 23 8 59 38.3 | Q | 17 5 6.66 | 6.91 | + 0.25 | N | 108 1 23.40 | 26.19 | + 2.79 |
| Aug 16 4 35 25.8 | Q | ..... | ..... | ..... | N | 100 38 47.07 | 47.62 | + 0.55 |
| 17 5 20 10.5 | Q | 15 3 36.64 | 36.42 | - 0.22 | N | 103 33 19.86 | 22.18 | + 2.32 |
| 18 6 5 45.3 | Q | 15 53 15.51 | 15.38 | - 0.13 | N | 105 51 9.22 | 9.79 | + 0.57 |
| 21 8 29 18.9 | Q | 18 29 2.33 | 2.55 | + 0.22 | N&S | 108 5 53.18 | 54.14 | + 0.96 |
| 22 9 19 7.9 | Q | 19 22 56.06 | 56.02 | - 0.04 | N&S | 107 3 25.93 | 29.11 | + 3.18 |
| 24 10 59 57.3 | Q | 21 11 55.18 | 55.32 | + 0.14 | N&S | 102 14 49.10 | 47.56 | - 1.54 |

Feb. 28, May 28 and 29, and June 27. Both Limbs observed in R.A.

Feb. 28, May 28 and 29, and June 27. Both Limbs observed in R.A.

Right Ascensions and North Polar Distances of the Centre of the Moon.

(concluded.)

| Oxford Mean Solar Time of Transit of Centre. | Observer. | R.A. from Observation. | Seconds of Tabular R.A. | Apparent Error of Tabular R.A. | Limb observed. | N.P.D. from Observation. | Seconds of Tabular N.P.D. | Apparent Error of Tabular N.P.D. |
|--|-----------|------------------------------|----------------------------------|---|-------------------|--------------------------------|------------------------------------|---|
| 1866. d. h. m. s. | | h. m. s. | s. | s. | | ° ' " | " | " |
| Sept. 19 7 58 31.9 | Q | 19 52 30.28 | 30.46 | + 0.18 | S | 106 1 41.07 | 41.88 | + 0.81 |
| 21 9 38 40.0 | Q | 21 40 47.98 | 48.07 | + 0.09 | S | 100 23 44.17 | 43.51 | - 0.66 |
| 24 12 13 27.5 | Q | 0 27 50.54 | 50.85 | + 0.31 | N&S | 87 27 10.96 | 11.85 | + 0.89 |
| Oct. 16 5 49 39.4 | Q | 19 29 43.54 | 43.61 | + 0.07 | S | 106 49 15.22 | 14.75 | - 0.47 |
| 17 6 38 6.7 | Q | 20 22 15.37 | 15.45 | + 0.08 | S | 104 50 28.54 | 28.10 | - 0.44 |
| 19 8 16 17.3 | Q | 22 8 35.15 | 35.26 | + 0.11 | S | 98 31 3.18 | 3.43 | + 0.25 |
| 22 10 51 28.2 | Q | 0 56 1.24 | 1.46 | + 0.22 | S | 85 11 45.18 | 44.47 | - 0.71 |
| Nov. 13 4 32 14.3 | Q | 20 2 29.26 | 29.37 | + 0.11 | S | 105 51 8.68 | 6.84 | - 1.84 |
| 14 5 19 45.1 | Q | 20 54 4.38 | 4.50 | + 0.12 | S | 103 25 32.64 | 31.29 | - 1.35 |
| 17 7 44 36.1 | Q | 23 31 8.80 | 8.73 | - 0.07 | S | 92 15 26.62 | 26.36 | - 0.26 |
| 19 9 28 38.0 | Q | 1 23 20.96 | 21.16 | + 0.20 | S | 83 9 18.68 | 18.67 | - 0.01 |
| 20 10 24 45.2 | Q | 2 23 33.95 | 34.10 | + 0.15 | S | 78 53 42.35 | 41.47 | - 0.88 |
| Dec. 13 4 50 50.7 | Q | 22 19 25.35 | 25.61 | + 0.26 | S | 98 10 21.90 | 23.40 | + 1.50 |
| 14 5 38 1.8 | Q | 23 10 39.95 | 40.07 | + 0.12 | S | 94 11 57.89 | 59.06 | + 1.17 |
| 15 6 26 10.1 | Q | 0 2 53.53 | 53.66 | + 0.13 | S | 89 53 41.29 | 40.10 | - 1.19 |
| 19 10 3 9.0 | Q | 3 56 14.33 | 14.56 | + 0.23 | S | 74 6 31.88 | 31.70 | - 0.18 |
| Sept. 24. Both Limbs observed in R.A. | | | | | | | | |

Right Ascensions and North Polar Distances of the Centre of Mercury.

| Oxford Mean Solar Time of Transit of Centre. | Observer. | R.A. from Observation. | Seconds of Tabular R.A. | Apparent Error of Tabular R.A. | N.P.D. from Observation. | Seconds of Tabular N.P.D. | Apparent Error of Tabular N.P.D. |
|--|-----------|------------------------------|----------------------------------|---|--------------------------------|------------------------------------|---|
| 1866. d. h. m. s. | | h. m. s. | s. | s. | ° ' " | " | " |
| Jan. 8 22 27 3·8 | Q | 17 42 0·09 | 0·12 | + 0·03 | 111 13 26·54 | 28·49 | + 1·95 |
| 14 22 27 28·5 | Q | 18 6 4·24 | 4·10 | — 0·14 | 112 13 | 28·34 | ..... |
| 22 22 38 29·3 | Q | 18 48 39·25 | 39·24 | — 0·01 | 112 57 | 19·43 | ..... |
| Feb. 7 23 15 50·6 | Q | 20 29 11·60 | 11·15 | — 0·45 | 110 46 46·51 | 47·58 | + 1·07 |
| 9 23 21 11·0 | Q | 20 42 26·00 | 26·20 | + 0·20 | 110 6 | 43·69 | ..... |
| 12 23 29 22·7 | Q | 21 2 28·71 | 28·65 | — 0·06 | 108 56 12·46 | 12·73 | + 0·27 |
| Mar. 12 0 48 54·0 | Q | 0 8 39·95 | 39·96 | + 0·01 | 89 24 16·88 | 17·32 | + 0·44 |
| 27 1 10 53·9 | Q | 1 29 51·73 | 51·79 | + 0·06 | 77 46 51·39 | 51·51 | + 0·12 |
| May 3 22 27 40·6 | Q | 1 16 0·68 | 0·73 | + 0·05 | 84 51 40·22 | 45·23 | (+ 5·01) |
| 22 22 27 32·8 | Q | 2 30 47·36 | 47·33 | — 0·03 | 78 3 33·49 | 33·96 | + 0·47 |
| June 26 0 55 1·1 | Q | 7 12 42·84 | 42·61 | — 0·23 | 65 41 | 44·31 | ..... |
| 27 0 59 39·1 | Q | 7 21 18·17 | 18·33 | + 0·16 | 65 56 14·21 | 14·05 | — 0·16 |
| 28 1 4 6·7 | Q | 7 29 43·07 | 43·02 | — 0·05 | 66 12 48·66 | 47·49 | — 1·17 |
| 29 1 8 22·6 | Q | 7 37 56·23 | 56·29 | + 0·06 | 66 31 17·60 | 16·96 | — 0·64 |
| July 4 1 26 46·6 | Q | 8 16 6·00 | 6·23 | + 0·23 | 68 27 57·03 | 58·92 | + 1·89 |
| 5 1 29 52·0 | Q | 8 23 8·48 | 8·65 | + 0·17 | 68 55 17·06 | 16·84 | — 0·22 |
| 10 1 42 24·9 | Q | 8 55 26·24 | 26·19 | — 0·05 | 71 25 15·29 | 15·16 | — 0·13 |
| 13 1 47 40·3 | Q | 9 12 32·17 | 32·30 | + 0·13 | 73 2 20·23 | 21·31 | + 1·08 |
| 16 1 51 15·7 | Q | 9 27 57·79 | 58·08 | + 0·29 | 74 41 43·90 | 46·39 | + 2·49 |
| 21 1 53 31·5 | Q | 9 49 56·70 | 56·71 | + 0·01 | 77 26 17·97 | 19·56 | + 1·59 |
| 23 1 53 4·5 | Q | 9 57 22·78 | 23·07 | + 0·29 | 78 29 51·40 | 45·73 | — 5·67 |
| Oct. 15 0 18 7·8 | Q | 13 53 21·11 | 21·14 | + 0·03 | 101 45 15·21 | 15·33 | + 0·12 |
| 16 0 20 8·9 | Q | 13 59 19·04 | 18·93 | — 0·11 | 102 25 2·74 | 1·89 | — 0·85 |
| 17 0 22 9·1 | Q | 14 5 16·11 | 16·06 | — 0·05 | 103 4 6·34 | 6·34 | 0·00 |
| 31 0 49 49·7 | Q | 15 28 12·79 | 12·77 | — 0·02 | 110 45 52·45 | 50·07 | — 2·38 |
| Nov. 6 1 1 22·9 | Q | 16 3 27·30 | 27·68 | + 0·38 | 113 5 31·44 | 29·67 | — 1·77 |
| 9 1 6 47·1 | Q | 16 20 42·08 | 42·48 | + 0·40 | 113 59 31·61 | 30·89 | — 0·72 |
| Dec. 18 22 33 52·5 | Q | 16 25 4·55 | 4·42 | — 0·13 | 108 48 6·29 | 5·19 | — 1·10 |

MEASURES OF DISTANCE
AND
ANGLE OF POSITION
OF THE
COMPONENTS OF DOUBLE STARS,
MADE, WITH THE HELIOMETER,
IN THE YEAR
1866.

| Nos. for Hel. | Day, 1800. | Sidereal Time. | Object. | Concluded Scale Readings. | Distances from Zero in Scale Divisions. | Mean of Measures in Arc. | Readings of Position- Circle. | Angle of Position. |
|---------------|---------------|-------------------|---------------------------------|---------------------------------|---|-----------------------------------|--|--------------------------|
| | | h. m. | | div. | div. | " | ° ' " | ° ' " |
| 1 | Jan. 6. | 2 27 | Groomb. 3516 & 3517. | 146.060 | 6.116 | | 47 3 | |
| 2 | | 30 | | .055 | .111 | 59.77 | | |
| 3 | | 32 | | .057 | .113 | 59.78 | | 25 44 |
| 4 | | 35 | | 133.835 | .109 | | 47 28 | |
| 5 | | 37 | | .834 | .110 | | | |
| 6 | Feb. 2. | 5 47 | {W.B. (d) III. 1087} & 1088. | 142.686 | 2.727 | | 183 27 | |
| 7 | | 49 | | .685 | .726 | | | |
| 8 | | 51 | | .722 | .763 | 79.71 | | 162 11 |
| 9 | | 55 | | 137.218 | .741 | | 183 58 | |
| 10 | | 57 | | .207 | .752 | | | |
| 11 | | 59 | | .235 | .724 | | | |
| 12 | | 6 18 | 27 & 28 Tauri. | 129.696 | 10.218 | | 204 0 | |
| 13 | | 20 | | .700 | .214 | | | |
| 14 | | 22 | | .712 | .202 | 300.45 | | 182 44 |
| 15 | | 29 | | 150.140 | .226 | | 204 31 | |
| 16 | | 31 | | .130 | .216 | | | |
| 17 | | 33 | | .106 | .192 | | | |
| 18 | | 7 7 | κ^1 & κ^2 Tauri. | 151.486 | 11.529 | | 194 3 | |
| 19 | | 9 | | .511 | .554 | | | |
| 20 | | 11 | | .482 | .525 | 339.44 | | 172 23 |
| 21 | | 12 | | 128.420 | .537 | | 193 47 | |
| 22 | | 14 | | .422 | .535 | | | |
| 23 | | 16 | | .420 | .537 | | | |
| 24 | | 7 25 | θ^1 & θ^2 Tauri. | 128.535 | 11.427 | | 187 6 | |
| 25 | | 27 | | .496 | .466 | | | |
| 26 | | 29 | | .495 | .467 | 336.99 | | 345 52 |
| 27 | | 41 | | 151.430 | .468 | | 187 43 | |
| 28 | | 43 | | .410 | .448 | | | |
| 29 | | 48 | | .405 | .443 | | | |

Assumed value of one division of the scale, $29''.424$.Assumed zero of position-circle, $21^\circ 32'$.

1, &c. Stars equal; mag. 6.0; yellow. By contact of images. Galvanic light faint. Correction for refraction, $+0''.063$.

6, &c. Stars equal; mag. 7.0; white. By contact of images. (All large distances are measured thus.) Correction for refraction, $+0''.049$.

12, &c. Mags. 4.0 and 5.0; yellow and greenish. Correction for refraction, $+0''.130$.

18, &c. Mags. 4.8 and 5.6; white. Correction for refraction, $+0''.141$.

24, &c. Stars equal; mag. 4.8; white. Correction for refraction, $+0''.160$.

| Nos. for Ref. | Day, 1866. | Sidereal Time. | Object. | Concluded Scale Readings. | Distances from Zero in Scale Divisions. | Mean of Measures in Arc. | Readings of Position-Circle. | Angle of Position. |
|---------------|------------|----------------|-------------------------------|---------------------------|---|--------------------------|------------------------------|--------------------|
| | | h. m. | | div. | div. | " | ° ' " | ° ' " |
| 1 | Feb. 7 | 4 33 | {W.B. (2) III. 456} & 459. | 141.465 | 1.504 | 44.14 | 256 2 | 232 44 |
| 2 | | 35 | | .450 | .489 | | | |
| 3 | | 37 | | .468 | .507 | | | |
| 4 | | 42 | | 138.459 | .502 | | 252 29 | |
| 5 | | 44 | | .462 | .499 | | | |
| 6 | | 46 | | .463 | .498 | | | |
| 7 | | 4 55 | Σ 401. | 139.197 | 0.767 | 11.03 | 285 0 | 267 11 |
| 8 | | 57 | | .226 | .738 | | | |
| 9 | | 59 | | .220 | .744 | | | |
| 10 | | 5 3 | | 140.731 | .767 | | 292 25 | |
| 11 | | 5 | | .702 | .738 | | | |
| 12 | | 7 | | .707 | .743 | | | |
| 13 | | 6 32 | Σ 427. | 140.411 | 0.466 | 6.66 | 233 49 | 207 51 |
| 14 | | 34 | | .385 | .440 | | | |
| 15 | | 52 | | .398 | .453 | | | |
| 16 | | 7 10 | | 139.505 | .440 | | 224 57 | |
| 17 | | 12 | | .481 | .464 | | | |
| 18 | | 14 | | .490 | .455 | | | |
| 19 | Feb. 10 | 5 8 | Σ 422. = Piazzi iii. 98. | 140.338 | .384 | 5.71 | 265 12 | 237 14 |
| 20 | | 10 | | .336 | .382 | | | |
| 21 | | 12 | | .350 | .396 | | | |
| 22 | | 14 | | 139.555 | .399 | | 252 20 | |
| 23 | | 16 | | .593 | .361 | | | |
| 24 | | 18 | | .551 | .403 | | | |
| 25 | Feb. 17 | 5 25 | Σ 414. | 139.463 | .475 | 7.25 | 199 47 | 180 53 |
| 26 | | 27 | | .441 | .497 | | | |
| 27 | | 29 | | .431 | .507 | | | |
| 28 | | 33 | | 140.450 | .512 | | 205 3 | |
| 29 | | 35 | | .425 | .487 | | | |
| 30 | | 37 | | .420 | .482 | | | |

Assumed value of one division of the scale, 29".424.

Assumed zero of position-circle, 21° 32'.

1, &c. Mags. 7.0 and 7.3; white. By contact of images. Correction for refraction, +0".025.

7, &c. Stars equal; mag. 6.0; brilliant white. Method of equal distances.

13, &c. Mags. 7.0 and 7.3; white. The galvanic battery failed, and I was obliged to

take out one of the plates. Method of equal distances.

19, &c. Mags. 6.0 and 8.5; large star yellow. Exceedingly tremulous, and small star very faint.

25, &c. Stars equal; mag. 8.0; white.

142 *Observations of Double Stars, &c., made with the Heliometer,*

| Num. for Ref. | Day, 1866. | Sidereal Time. | Object. | Concluded Scale Readings. | Distances from Zero in Scale Divisions. | Mean of Measures in Arc. | Readings of Position-Circle. | Angle of Position. |
|---------------|------------|----------------|---------------|---------------------------|---|--------------------------|------------------------------|--------------------|
| | | h. m. | | div. | div. | " | ° ' " | ° ' " |
| 1 | Feb. 21 | 5 55 | Σ 436. | 137.767 | 2.173 | 32.00 | 255 8 | 235 12 |
| 2 | | 57 | | .741 | .199 | | | |
| 3 | | 6 0 | | .786 | .154 | | | |
| 4 | | 5 | | 142.109 | .169 | | 258 20 | |
| 5 | | 7 | | .109 | .169 | | | |
| 6 | | 9 | | .125 | .185 | | | |
| 7 | | 7 5 | Σ 612. | 141.069 | 1.105 | 16.20 | 221 10 | 198 13 |
| 8 | | 7 | | .049 | .085 | | | |
| 9 | | 9 | | .078 | .114 | | | |
| 10 | | 18 | | 138.827 | .137 | | 218 20 | |
| 11 | | 20 | | .890 | .074 | | | |
| 12 | | 22 | | .895 | .069 | | | |
| 13 | | 24 | | .841 | .123 | | | |
| 14 | | 7 40 | Σ 549. | 138.263 | 1.691 | 25.04 | 175 10 | 155 26 |
| 15 | | 45 | | .232 | .722 | | | |
| 16 | | 47 | | .260 | .694 | | | |
| 17 | | 8 12 | | 141.650 | .696 | | 178 45 | |
| 18 | | 14 | | .672 | .718 | | | |
| 19 | | 18 | | .646 | .692 | | | |
| 20 | Feb. 28 | 6 10 | Σ 627. | 141.390 | 1.422 | 20.86 | 282 22 | 258 49 |
| 21 | | 12 | | .413 | .445 | | | |
| 22 | | 14 | | .355 | .387 | | | |
| 23 | | 18 | | 138.550 | .418 | | 278 19 | |
| 24 | | 20 | | .539 | .429 | | | |
| 25 | | 22 | | .563 | .405 | | | |
| 26 | | 6 35 | Σ 664. | 139.651 | 0.327 | 4.81 | 356 49 | 159 8 |
| 27 | | 37 | | .641 | .337 | | | |
| 28 | | 39 | | .661 | .317 | | | |
| 29 | | 45 | | 140.330 | .352 | | 4 30 | |
| 30 | | 47 | | .287 | .309 | | | |
| 31 | | 49 | | .295 | .317 | | | |

Assumed value of one division of the scale, $29''.424$.

Assumed zero of position-circle, $21^{\circ} 32'$.

1, &c. Magns. 7.0 and 8.0; white.

7, &c. Stars equal; mag. 7.8; white.

14, &c. Magns. 7.5 and 9.0; white. Very difficult.

20, &c. Stars equal; mag. 7.0; white.

26, &c. Magns. 7.5 and 8.0; white. Very confused and tremulous.

| Nos. for Ref. | Day, 1866. | Sidereal Time. | Object. | Concluded Scale Readings. | Distances from Zero in Scale Divisions. | Mean of Measures in Arc. | Readings of Position- Circle. | Angle of Position. |
|---------------|---------------|-------------------|-------------|---------------------------------|---|-----------------------------------|--|--------------------------|
| | | h. m. | | div. | div. | " | ° ' " | ° ' " |
| 1 | Feb. 28 | 7 5 | Σ 697. | 141'735 | 1'771 | | 306 8 | |
| 2 | | 7 | | '708 | '744 | | | |
| 3 | | 9 | | '692 | '728 | | | |
| 4 | | 11 | | '725 | '761 | 25'76 | | 283 15 |
| 5 | | 15 | | 138'197 | '767 | | 303 26 | |
| 6 | | 17 | | '211 | '753 | | | |
| 7 | | 19 | | '229 | '735 | | | |
| 8 | June 8 | 14 14 | γ Virginis. | 139'541 | 0'286 | | 182 0 | |
| 9 | | 19 | | '534 | '293 | | | |
| 10 | | 22 | | '539 | '288 | 4'25 | | 164 47 |
| 11 | | 25 | | 140'111 | '284 | | 190 37 | |
| 12 | | 29 | | '125 | '298 | | | |
| 13 | | 31 | | '113 | '286 | | | |
| 14 | | 15 30 | Σ 1428. | 139'585 | 0'267 | | 99 7 | |
| 15 | | 32 | | '595 | '257 | | | |
| 16 | | 34 | | '584 | '268 | 3'87 | | 88 36 |
| 17 | | 40 | | 140'089 | '237 | | 121 10 | |
| 18 | | 42 | | '148 | (.196) | | | |
| 19 | | 43 | | '112 | '260 | | | |
| 20 | | 16 10 | Σ 1678. | 137'772 | 2'089 | | 224 2 | |
| 21 | | 14 | | '750 | '111 | | | |
| 22 | | 16 | | '730 | '131 | 31'06 | | 201 56 |
| 23 | | 24 | | 142'000 | '139 | | 222 53 | |
| 24 | | 28 | | 141'945 | '084 | | | |
| 25 | | 30 | | '971 | '110 | | | |
| 26 | June 19 | 15 5 | γ Virginis. | 140'324 | 0'285 | | 198 27 | |
| 27 | | 7 | | '342 | '303 | | | |
| 28 | | 9 | | '341 | '302 | 4'44 | | 165 42 |
| 29 | | 11 | | 139'738 | '301 | | 176 0 | |
| 30 | | 13 | | '743 | '296 | | | |
| 31 | | 15 | | '748 | '291 | | | |

Assumed value of one division of the scale, 29''·424.

Assumed zero of position-circle, 21° 32'.

1, &c. Mags. 7·3 and 8·2; white.
8, &c. Stars equal; mag. 3·4; straw-coloured.
Very faint and flickering.
14, &c. Stars equal; mag. 8·0; white. Dif-
ficult.

20, &c. Mags. 6·0 and 6·3; white. The
stars rather too wide for measures at
equal-distances.
26, &c. Stars equal; mag. 4·0; yellow.

| No. for Ref. | Day, 1866. | Sidereal Time. | Object. | Concluded Scale Readings. | Distances from Zero in Scale Divisions. | Mean of Measures in Arc. | Readings of Position-Circle. | Angle of Position. |
|--------------|------------|----------------|------------------------------|---------------------------|---|--------------------------|------------------------------|--------------------|
| | | h. m. | | div. | div. | " | ° ' | ° ' |
| 1 | June 19 | 15 50 | Σ 2474. | 141'163 | 1'135 | 16'86 | 102 31 | 258 56 |
| 2 | | 52 | | '169 | '141 | | | |
| 3 | | 54 | | '187 | '159 | | | |
| 4 | | 56 | | 138'880 | '148 | | 98 25 | |
| 5 | | 58 | | '885 | '143 | | | |
| 6 | | 16 0 | | '885 | '143 | | | |
| 7 | | 16 14 | Σ 2576. | 139'800 | 0'242 | 3'46 | 126 29 | 296 48 |
| 8 | | 16 | | '811 | '230 | | | |
| 9 | | 18 | | '809 | '233 | | | |
| 10 | | 24 | | 140'270 | '228 | | 150 11 | |
| 11 | | 26 | | '268 | '226 | | | |
| 12 | | 28 | | '292 | '250 | | | |
| 13 | | 16 36 | θ Sagittæ. (A, B.) | 140'889 | 0'858 | 12'33 | 170 41 | 326 48 |
| 14 | | 37 | | '868 | '837 | | | |
| 15 | | 39 | | '850 | '819 | | | |
| 16 | | 45 | | 139'182 | '849 | | 165 58 | |
| 17 | | 47 | | '184 | '847 | | | |
| 18 | | 50 | | '212 | '819 | | | |
| 19 | | 16 57 | θ Sagittæ. (A, C.) | 137'544 | 2'513 | 73'88 | 245 14 | 224 46 |
| 20 | | 59 | | '546 | '511 | | | |
| 21 | | 17 2 | | '547 | '510 | | | |
| 22 | | 8 | | 142'565 | '508 | | 247 21 | |
| 23 | | 10 | | '558 | '501 | | | |
| 24 | | 12 | | '582 | '525 | | | |
| 25 | June 22 | 15 12 | α Herculis. | 140'395 | 0'339 | 5'02 | 142 37 | 114 59 |
| 26 | | 14 | | '391 | '335 | | | |
| 27 | | 15 | | '397 | '341 | | | |
| 28 | | 17 | | 139'730 | '326 | | 130 25 | |
| 29 | | 18 | | '708 | '348 | | | |
| 30 | | 19 | | '712 | '344 | | | |

Assumed value of one division of the scale, $29''\cdot424$,Assumed zero of position-circle, $21^{\circ} 32'$.

1, &c. Mags. 7'0 and 8'0; white and grey.
 7, &c. Stars equal; mag. 8'0; white. Difficult measures, the stars being very unsteady.

13, &c. Mags. 6'0 and 8'0; white.

19, &c. Mags. 6'0 and 6'5; white. By contact of images. Motion in distance confirmed. Correction for refraction, $+0''\cdot042$.

25, &c. Mags. 3'0 and 7'0; yellow and straw-coloured.

| Nos. for Ref. | Day, 1866. | Sidereal Time. | Object. | Concluded Scale Readings. | Distances from Zero in Scale Divisions. | Mean of Measures in Arc. | Readings of Position-Circle. | Angle of Position. |
|---------------|------------|----------------|-------------------------|---------------------------|---|--------------------------|------------------------------|--------------------|
| 1 | June 22 | h. m. | 33 & 34 Ophiuchi. | div. | div. | 294.16 | 0 / | 0 / |
| 2 | | 15 27 | | 150.013 | 9.984 | | 137 29 | |
| 3 | | 29 | | .043 | 10.014 | | | |
| 4 | | 31 | | .022 | 9.993 | | | |
| 5 | | 35 | | 130.028 | 10.001 | | 136 33 | 115 29 |
| 6 | | 40 | | .040 | 9.989 | | | |
| 7 | | 42 | m^1 & m^2 Herculis. | .030 | .999 | 69.65 | | |
| 8 | | 16 5 | | 137.678 | 2.385 | | 70 1 | |
| 9 | | 6 | | .696 | .367 | | | |
| 10 | | 8 | | .710 | .353 | | | |
| 11 | | 10 | | .698 | .365 | | 72 33 | 49 45 |
| 12 | | 15 | | 142.440 | .377 | | | |
| 13 | | 16 | | .410 | .347 | | | |
| 14 | | 17 | f Ophiuchi. | .437 | .374 | 41.22 | | |
| 15 | | 16 27 | | 141.422 | 1.376 | | 34 15 | |
| 16 | | 29 | | .440 | .394 | | | |
| 17 | | 31 | | .475 | .429 | | | |
| 18 | | 33 | | 138.665 | .381 | | 29 40 | 190 26 |
| 19 | | 36 | | .665 | .381 | | | |
| 20 | | 39 | 2 & 3 Sagittæ. | .600 | .446 | 336.23 | | |
| 21 | | 16 48 | | 151.478 | 11.419 | | 100 50 | |
| 22 | | 50 | | .452 | .393 | | | |
| 23 | | 52 | | .506 | .447 | | | |
| 24 | | 54 | | .509 | .450 | | | |
| 25 | | 57 | | 128.645 | .414 | | 99 56 | 78 51 |
| 26 | | 59 | | .591 | .468 | | | |
| 27 | | 17 0 | | .655 | .404 | | | |
| | | 1 | | .635 | .424 | | | |

Assumed value of one division of the scale, $29''.424$.

Assumed zero of position-circle, $21^\circ 32'$.

1, &c. Stars equal; mag. 6.0; white. By coincidence of images, as in all other observations which follow, excepting where the contrary is specifically mentioned. Correction for refraction, $+0''.094$.
7, &c. Mags. 6.0 and 6.5; white. Cor-

rection for refraction, $+0''.031$.
14, &c. Mags. 5.5 and 7.0; brilliant white and dull white. Correction for refraction, $+0''.022$.
20, &c. Mags. 5.7 and 6.0; brilliant white. Correction for refraction, $+0''.138$.

| Nos. for Ref. | Day, 1866. | Sidereal Time. | Object. | Concluded Scale Readings. | Distances from Zero in Scale Divisions. | Mean of Measures in Arc. | Readings of Position-Circle. | Angle of Position. |
|---------------|------------|----------------|------------------------------------|---------------------------|---|--------------------------|------------------------------|--------------------|
| | | h. m. | | div. | div. | " | o ' " | o ' " |
| 1 | June 23 | 14 57 | ϵ^1 & ϵ^2 Lyrae. | 132'9.17 | 7'12.3 | 209'6.2 | 193 27 | 172 25 |
| 2 | | 59 | | '9.30 | '11.0 | | | |
| 3 | | 15 0 | | '9.01 | '13.9 | | | |
| 4 | | 4 | | 147'17.0 | '13.0 | | 194 27 | |
| 5 | | 6 | | '16.9 | '12.9 | | | |
| 6 | | 7 | | '15.1 | '11.1 | | | |
| 7 | | 15 14 | ζ^1 & ζ^2 Lyrae. | 141'56.5 | 1'50.3 | 43'6.4 | 173 33 | 149 25 |
| 8 | | 16 | | '54.1 | '47.9 | | | |
| 9 | | 18 | | '52.8 | '46.6 | | | |
| 10 | | 25 | | 138'58.3 | '47.9 | | 168 20 | |
| 11 | | 27 | | '58.2 | '48.0 | | | |
| 12 | | 29 | | '57.3 | '48.9 | | | |
| 13 | | 15 37 | β Lyrae. | 138'45.0 | 1'6.14 | 47'2.3 | 169 22 | 149 30 |
| 14 | | 39 | | '46.0 | '6.04 | | | |
| 15 | | 40 | | '46.7 | '5.97 | | | |
| 16 | | 42 | | 141'67.5 | '6.11 | | 172 42 | |
| 17 | | 43 | | '66.3 | '5.99 | | | |
| 18 | | 45 | | '67.0 | '6.06 | | | |
| 19 | | 16 5 | α & 8 Vulpeculae. | 153'65.9 | 13'62.4 | 401'1.4 | 229 34 | 27 51 |
| 20 | | 7 | | '66.7 | '63.2 | | | |
| 21 | | 8 | | '67.9 | '64.4 | | | |
| 22 | | 12 | | 126'42.3 | '61.2 | | 229 12 | |
| 23 | | 14 | | '40.0 | '63.5 | | | |
| 24 | | 16 | | '38.4 | '65.1 | | | |
| 25 | | 16 25 | β Cygni. | 138'8.35 | 1'18.2 | 34'0.4 | 255 50 | 56 16 |
| 26 | | 27 | | '87.2 | '14.5 | | | |
| 27 | | 29 | | '87.2 | '14.5 | | | |
| 28 | | 31 | | '86.0 | '15.7 | | | |
| 29 | | 34 | | 141'15.3 | '13.6 | | 259 45 | |
| 30 | | 35 | | '19.0 | '17.3 | | | |
| 31 | | 36 | | '18.0 | '16.3 | | | |

Assumed value of one division of the scale, $29''.424$.Assumed zero of position-circle, $21^\circ 32'$.1, &c. Strong twilight. Correction for refraction, $+0''.067$.7, &c. Strong twilight. Correction for refraction, $+0''.012$.

13, &c. Mags. 3.0 and 7.0; yellow and

white. Correction for refraction, $+0''.014$.
19, &c. Mags. 4.5 and 5.0; yellow. Correction for refraction, $+0''.222$.

25, &c. Mags. 3.0 and 6.0; topaz yellow and blue.

| Nos. for Ref. | Day, 1866. | Sidereal Time. | Object. | Concluded Scale Readings. | Distances from Zero in Scale Divisions. | Mean of Measures in Arc. | Readings of Position-Circle. | Angle of Position. |
|---------------|------------|----------------|--|---------------------------|---|--------------------------|------------------------------|--------------------|
| | | h. m. | | div. | div. | " | ° ' " | ° ' " |
| 1 | June 25 | 17 11 | { ϵ Cygni & B.A.C. 6764. } | 141°357 | 1°302 | 38°04 | 338 0 | 135 0 |
| 2 | | 13 | | '320 | '265 | | | |
| 3 | | 15 | | '370 | '315 | | | |
| 4 | | 16 | | '340 | '285 | | | |
| 5 | | 19 | | 138°765 | '290 | | 335 3 | |
| 6 | | 21 | | '767 | '288 | | | |
| 7 | | 22 | | '758 | '297 | | | |
| 8 | | 25 | | '754 | '301 | | | |
| 9 | | 17 39 | { Piazzì xix. 320 & 321. } | 138°604 | 1°436 | 42°31 | 347 22 | 147 21 |
| 10 | | 40 | | '610 | '430 | | | |
| 11 | | 42 | | '592 | '448 | | | |
| 12 | | 44 | | 141°475 | '435 | | 350 23 | |
| 13 | | 46 | | '483 | '443 | | | |
| 14 | | 48 | | '475 | '435 | | | |
| 15 | June 26 | 15 22 | ν^1 & ν^2 Draconis. | 142°143 | 2°086 | 61°41 | 334 30 | 312 13 |
| 16 | | 24 | | '149 | '092 | | | |
| 17 | | 25 | | '140 | '083 | | | |
| 18 | | 27 | | 137°981 | '076 | | 332 59 | |
| 19 | | 29 | | '960 | '097 | | | |
| 20 | | 31 | | '970 | '087 | | | |
| 21 | | 15 47 | { δ Draconis & Radcliffe 3928. } | 137°000 | 3°044 | 89°66 | 41 10 | 21 19 |
| 22 | | 48 | | '000 | '044 | | | |
| 23 | | 49 | | 136°991 | '053 | | | |
| 24 | | 52 | | 143°090 | '046 | | 44 31 | |
| 25 | | 54 | | '092 | '048 | | | |
| 26 | | 55 | | '091 | '047 | | | |
| 27 | | 16 22 | { Radcliffe 4379 & 4376. } | 142°616 | 2°563 | 75°56 | 309 55 | 286 35 |
| 28 | | 23 | | '631 | '578 | | | |
| 29 | | 24 | | '615 | '562 | | | |
| 30 | | 26 | | 137°471 | '582 | | 306 19 | |
| 31 | | 27 | | '502 | '551 | | | |
| 32 | | 29 | | '482 | '571 | | | |

Assumed value of one division of the scale, $29''\cdot424$.

Assumed zero of position-circle, $21^\circ 32''$.

1, &c. Stars equal; mag. 5° ; yellow.

9, &c. Mags. 6° and $6^\circ 3$; white.

15, &c. Stars equal; mag. $4^\circ 7$; yellow.

Correction for refraction, $+0''\cdot018$.

21, &c. Mags. $4^\circ 5$ and 7° ; yellowish white

and ashy. Correction for refraction, $+0''\cdot026$.

27, &c. Mags. 5° and 7° ; yellow and bluish.

Correction for refraction, $+0''\cdot026$.

| No. for Hel. | Day, 1866. | Sidereal Time. | Object. | Concluded Scale Readings. | Distances from Zero in Scale Divisions. | Mean of Measures in Arc. | Readings of Position-Circle. | Angle of Position. |
|--------------|------------|----------------|--|---------------------------|---|--------------------------|------------------------------|--------------------|
| | | h. m. | | div. | div. | " | " " | " " |
| 1 | June 26 | 16 40 | α^2 & α^1 Cygni | 128'550 | 11'494 | 337'97 | 344 47 | 323 33 |
| 2 | | 42 | | '570 | '474 | | | |
| 3 | | 44 | | '555 | '489 | | | |
| 4 | | 49 | | 151'533 | '489 | | 345 23 | |
| 5 | | 54 | | '525 | '481 | | | |
| 6 | | 56 | | '532 | '488 | | | |
| 7 | | 17 4 | { α^2 Cygni & Piazzi xx. 63. } | 143'696 | 3'647 | 106'93 | 15 42 | 173 12 |
| 8 | | 6 | | '665 | '616 | | | |
| 9 | | 10 | | '687 | '638 | | | |
| 10 | | 16 | | 136'434 | '615 | | 13 45 | |
| 11 | | 18 | | '407 | '642 | | | |
| 12 | | 20 | | '405 | '644 | | | |
| 13 | July 11 | 16 23 | { 17 Comæ & Piazzi xii. 96. } | 145'000 | 4'944 | 145'47 | 92 33 | 250 8 |
| 14 | | 24 | | '000 | '944 | | | |
| 15 | | 25 | | '000 | '944 | | | |
| 16 | | 28 | | 135'101 | '955 | | 90 47 | |
| 17 | | 29 | | '119 | '937 | | | |
| 18 | | 30 | | '117 | '939 | | | |
| 19 | | 16 41 | 32 & 33 Comæ. | 133'434 | 6 622 | 194'81 | 70 0 | 48 54 |
| 20 | | 47 | | '418 | '638 | | | |
| 21 | | 49 | | '431 | '625 | | | |
| 22 | | 51 | | '445 | '611 | | | |
| 23 | | 55 | | 146'671 | '615 | | 70 52 | |
| 24 | | 57 | | '678 | '622 | | | |
| 25 | | 59 | | '687 | '631 | | | |
| 26 | | 17 30 | 15 & 17 Can. Ven. | 130'293 | 9'764 | 287'65 | 138 5 | 296 56 |
| 27 | | 32 | | '289 | '768 | | | |
| 28 | | 34 | | '264 | '793 | | | |
| 29 | | 40 | | 149 822 | '765 | | 138 51 | |
| 30 | | 42 | | '837 | '780 | | | |
| 31 | | 44 | | '840 | '783 | | | |

Assumed value of one division of the scale, 29".424.

Assumed zero of position-circle, 21 32".

1, &c. Magn. 3'5 and 4'5; deep yellow and pale blue. Correction for refraction, + 0".095.

7, &c. Magn. 4'5 and 7'0; deep yellow and bluish white. Correction for refraction, + 0".031.

13, &c. Magn. 4'5 and 6'0; white. Cor-

rection for refraction, + 0".093.

19, &c. Magn. 6'0 and 6'5; yellowish. Correction for refraction, + 0".192.

26, &c. Stars equal; mag. 5'0; brilliant white. Small decrease in distance. Correction for refraction, + 0".096.

| Nos. for Ref. | Day, 1866. | Sidereal Time. | Object. | Concluded Scale Readings. | Distances from Zero in Scale Divisions. | Mean of Measures in Arc. | Readings of Position-Circle. | Angle of Position. |
|---------------|------------|----------------|----------------------|---------------------------|---|--------------------------|------------------------------|--------------------|
| | | h. m. | | div. | div. | " | ° ' | ° ' |
| 1 | July 11 | 17 54 | Groomb. 1972 & 1971. | 146'099 | 6'074 | | 138 10 | |
| 2 | | 56 | | '120 | '095 | | | |
| 3 | | 58 | | '111 | '086 | 179'08 | | 296 20 |
| 4 | | 18 5 | | 133'937 | '088 | | 137 33 | |
| 5 | | 7 | | '940 | '085 | | | |
| 6 | July 12 | 17 34 | Σ 1559. | 139'905 | 0'163 | | 158 56 | |
| 7 | | 36 | | '909 | '159 | | | |
| 8 | | 38 | | '905 | '163 | | | |
| 9 | | 45 | | 140'235 | '167 | 2'38 | | 318 35 |
| 10 | | 47 | | '237 | '169 | | 161 17 | |
| 11 | | 49 | | '217 | '149 | | | |
| 12 | | 18 5 | Σ 1695. | 139'801 | 0'252 | | 117 10 | |
| 13 | | 7 | | '789 | '264 | | | |
| 14 | | 9 | | '807 | '246 | | | |
| 15 | | 15 | | 140'327 | '274 | 3'74 | | 278 55 |
| 16 | | 17 | | '292 | '239 | | 123 43 | |
| 17 | | 19 | | '302 | '249 | | | |
| 18 | July 13 | 16 42 | { 65 Ursæ Majoris } | 137'940 | 2'131 | | 134 40 | |
| 19 | | 43 | { & Groomb. 1834. } | '912 | '159 | | | |
| 20 | | 44 | | '949 | '122 | | | |
| 21 | | 48 | | 142'218 | '147 | 62'91 | | 113 14 |
| 22 | | 50 | | '190 | '119 | | 134 52 | |
| 23 | | 52 | | '220 | '149 | | | |
| 24 | | 17 30 | { μ Boötis } | 136'375 | 3'671 | | 192 22 | |
| 25 | | 32 | { & Piazzi xv. 74. } | '338 | '708 | | | |
| 26 | | 34 | | '370 | '676 | | | |
| 27 | | 38 | | 143'755 | '709 | 108'43 | | 171 28 |
| 28 | | 40 | | '717 | '671 | | 193 37 | |
| 29 | | 42 | | '722 | '676 | | | |

Assumed value of one division of the scale, 29''·424.

Assumed zero of position-circle, 21° 32'.

1, &c. Stars equal; mag. 5·5; yellow. Interrupted by clouds. Correction for refraction, + 0''·068.

6, &c. Mags. 6·5 and 7·0; white. By the method of equal distances. Very unsteady and confused.

12, &c. Mags. 6·0 and 8·0; brilliant white

and blue. By the method of equal distances.

18, &c. Mags. 7·0 and 7·3; white. Correction for refraction, + 0''·023.

24, &c. Mags. 3·5 and 7·0; brilliant white. Correction for refraction, + 0''·033.

| Nos. for Ref. | Day, 1866. | Sidereal Time. | Object. | Concluded Scale Readings. | Distances from Zero in Scale Divisions. | Mean of Measures in Arc. | Readings of Position-Circle. | Angle of Position. |
|---------------|------------|----------------|-----------------------------------|---------------------------|---|--------------------------|------------------------------|--------------------|
| | | h. m. | | div. | div. | " | ° ' ° ' | |
| 1 | July 14 | 16 55 | { 48 Cygni & Piazzi xx. 243. } | 146.123 | 6.063 | 178.49 | 16 48 | 175 6 |
| 2 | | 56 | | .126 | .066 | | | |
| 3 | | 17 0 | | .134 | .074 | | | |
| 4 | | 3 | | 134.000 | .060 | | 16 28 | |
| 5 | | 5 | | .000 | .060 | | | |
| 6 | | 6 | | 133.985 | .075 | | | |
| 7 | July 18 | 17 0 | { W.B. (2) XXI. 427 & 433. } | 152.473 | 12.398 | 364.89 | 324 21 | 302 44 |
| 8 | | 1 | | .490 | .415 | | | |
| 9 | | 2 | | .463 | .388 | | | |
| 10 | | 11 | | 127.669 | .406 | | 324 10 | |
| 11 | | 13 | | .675 | .400 | | | |
| 12 | | 14 | | .678 | .397 | | | |
| 13 | | 17 38 | δ Cephei. | 138.719 | 1.349 | 40.34 | 31 3 | 191 58 |
| 14 | | 40 | | .697 | .371 | | | |
| 15 | | 42 | | .673 | .395 | | | |
| 16 | | 45 | | 141.434 | .366 | | 35 57 | |
| 17 | | 48 | | .443 | .375 | | | |
| 18 | | 52 | | .439 | .371 | | | |

Assumed value of one division of the scale, $29''.424$.

Assumed zero of position-circle, $21^{\circ} 32'$.

1, &c. Mags. 6.0. and 6.5; white and yellow.

Correction for refraction, $+0''.067$.

7, &c. Stars equal; mag. 6.0; yellow. Cor-

rection for refraction, $+0''.111$.

13, &c. Mags. 3.0 and 6.0; yellow and blue.

Catalogue of the Distances and Angles of Position of the Components of Double Stars, observed with the Heliometer, at the Radcliffe Observatory, Oxford, in the Year 1866.

| No. | Name of Star. | For Principal Star. | | | | Days of Observation. | Fraction of the Year. | Measured Distance. | Angle of Position. | Mags. | Colour, &c. |
|-----|--|---------------------|-----------------------|--|---------|----------------------|-----------------------|--------------------|--------------------|-------------------------|-------------|
| | | Approx. R.A., 1866. | Approx. N.P.D., 1866. | | | | | | | | |
| | | h. m. s. | ° ' " | | 1866. | | " | ° ' " | | | |
| 1 | W.B. (1) III. } 1087 & 1088 } | 3 2 3 | 83 4 | | Feb. 2 | 0'09 | 79'76 | 162 11 | 7'0, eq. | White. | |
| 2 | W.B. (2) III. } 456 & 459... } | 3 22 55 | 62 44 | | Feb. 7 | '10 | 44'16 | 232 44 | 7'0 & 7'3 | White. | |
| 3 | Σ 401 | 3 23 12 | 62 53 | | Feb. 7 | '10 | 11'03 | 267 11 | 6'0, eq. | Brilliant white. | |
| 4 | Σ 414 | 3 26 33 | 70 40 | | Feb. 17 | '13 | 7'25 | 180 53 | 8'0, eq. | White. | |
| 5 | Σ 422 | 3 29 55 | 89 51 | | Feb. 7 | '10 | 5'71 | 237 14 | 6'0 & 8'5 | The large star yellow. | |
| 6 | Σ 427 | 3 32 27 | 61 40 | | Feb. 7 | '10 | 6'66 | 207 51 | 7'0 & 7'3 | White. | |
| 7 | Σ 436 | 3 34 32 | 103 3 | | Feb. 21 | '14 | 32'00 | 235 12 | 7'0 & 8'0 | White. | |
| 8 | 27 & 28 Tauri... | 3 41 12 | 66 23 | | Feb. 2 | '09 | 300'58 | 182 44 | 4'0 & 5'0 | Yellow & greenish. | |
| 9 | κ ¹ & κ ² Tauri... | 4 17 23 | 68 1 | | Feb. 2 | '09 | 339'58 | 172 23 | 4'8 & 5'6 | White. | |
| 10 | Σ 549 | 4 20 31 | 80 17 | | Feb. 21 | '14 | 25'04 | 155 26 | 7'5 & 9'0 | White. | |
| 11 | θ ¹ & θ ² Tauri... | 4 20 55 | 74 20 | | Feb. 2 | '09 | 337'15 | 345 52 | 4'8, eq. | White. | |
| 12 | Σ 612 | 4 47 0 | 82 51 | | Feb. 21 | '14 | 16'20 | 198 13 | 7'8, eq. | White. | |
| 13 | Σ 627 | 4 53 32 | 86 35 | | Feb. 28 | '16 | 20'86 | 258 49 | 7'0, eq. | White. | |
| 14 | Σ 664 & W.B. } (1)V. 119 & 121 } | 5 6 52 | 81 43 | | Feb. 28 | '16 | 4'81 | 159 8 | 7'5 & 8'0 | White. | |
| 15 | Σ 697 | 5 15 49 | 74 5 | | Feb. 28 | '16 | 25'76 | 283 15 | 7'3 & 8'2 | White. | |
| 16 | Σ 1428 | 10 17 31 | 36 42 | | June 8 | '43 | 3'87 | 88 36 | 8'0, eq. | White. | |
| 17 | Σ 1559..... | 11 31 16 | 24 55 | | July 12 | '53 | 2'38 | 318 35 | 6'5 & 7'0 | White. | |
| 18 | 65 Ursæ Maj. } & Groom. 1834 } | 11 48 7 | 42 47 | | July 13 | '53 | 62'93 | 113 14 | 7'0 & 7'3 | White. | |
| 19 | 17 Comæ & ... } Piazzi xii. 96 } | 12 22 13 | 63 21 | | July 11 | '52 | 145'56 | 250 8 | 4'5 & 6'0 | White. | |
| 20 | γ Virginis | 12 34 52 | 90 43 | | June 8 | '43 | 4'25 | 164 47 | 3'4, eq. | Straw-coloured. | |
| | " | " | " | | June 19 | '46 | 4'44 | 165 42 | 4'0, eq. | Yellow. | |
| 21 | Σ 1678..... | 12 38 43 | 74 54 | | June 8 | '43 | 31'06 | 201 56 | 6'0 & 6'3 | White. | |
| 22 | 32 & 33 Comæ... | 12 45 32 | 72 11 | | July 11 | '52 | 195'00 | 48 54 | 6'0 & 6'5 | Yellowish. | |
| 23 | Σ 1695..... | 12 50 25 | 35 10 | | July 12 | '53 | 3'74 | 278 55 | 6'0 & 8'0 | Brilliant white & blue. | |
| 24 | 15 & 17 Can. Ven. | 13 3 33 | 50 45 | | July 11 | '52 | 287'75 | 296 56 | 5'0, eq. | Brilliant white. | |

| No. | Name of Star. | For Principal Star. | | | | Days of Observation. | Fraction of the Year. | Measured Distance. | Angle of Position. | Mags. | Colour, &c. |
|-----|--|--------------------------|-----------------------------|----|----|-------------------------|--------------------------|-----------------------|-----------------------|--------|---|
| | | Approx. R.A. 1866. | Approx. N.P.D., 1866. | h. | m. | s. | | | | | |
| 25 | Gr. 1972 & 1971 | 13 | 8 | 53 | 22 | 0 | July 11 | 0.52 | 179.15 | 296 20 | 5.5, eq. Yellow. |
| 26 | μ Boötis ... } & Piazzì xv. 74 | 15 | 19 | 27 | 52 | 9 | July 13 | .53 | 108.46 | 171 28 | 3.5 & 7.0 Brilliant white. |
| 27 | m^1 & m^2 Herculis | 16 | 34 | 0 | 85 | 31 | June 22 | .47 | 69.68 | 49 45 | 6.0 & 6.5 White. |
| 28 | B.A.C. 5757 & 5753 = 34 & 33 Ophiuchi | 16 | 57 | 48 | 76 | 14 | June 22 | .47 | 294.25 | 115 29 | 6.0, eq. White. |
| 29 | α Herculis | 17 | 8 | 32 | 75 | 27 | June 22 | .47 | 5.02 | 114 59 | 3.0 & 7.0 Yellow & straw- [dull white. |
| 30 | f Ophiuchi | 17 | 28 | 15 | 80 | 19 | June 22 | .47 | 41.24 | 190 26 | 5.5 & 7.0 Brilliant white & |
| 31 | v^1 & v^2 Draconis | 17 | 29 | 32 | 34 | 43 | June 26 | .48 | 61.43 | 312 13 | 4.7, eq. Yellow. |
| 32 | δ Draconis | 18 | 21 | 57 | 31 | 17 | June 26 | .48 | 89.69 | 21 19 | 4.5 & 7.0 Yellowish white & [ashy. |
| 33 | ϵ^1 & ϵ^2 Lyre ... | 18 | 39 | 54 | 50 | 28 | June 23 | .47 | 209.69 | 172 25 | ..... |
| 34 | ζ^1 & ζ^2 Lyre ... | 18 | 40 | 9 | 52 | 32 | June 23 | .47 | 43.65 | 149 25 | ..... |
| 35 | β Lyre | 18 | 45 | 8 | 56 | 47 | June 23 | .47 | 47.24 | 149 30 | 3.0 & 7.0 Yellow & white. |
| 36 | Σ 2474 | 19 | 4 | 9 | 55 | 37 | June 19 | .46 | 16.86 | 258 56 | 7.0 & 8.0 White & grey. |
| 37 | 2 & 3 Sagittæ ... | 19 | 18 | 21 | 73 | 19 | June 22 | .47 | 336.37 | 78 51 | 5.7 & 6.0 Brilliant white. |
| 38 | α & 8 Vulpeculæ | 19 | 23 | 8 | 65 | 36 | June 23 | .47 | 401.36 | 27 51 | 4.5 & 5.0 Yellow. |
| 39 | β Cygni | 19 | 25 | 19 | 62 | 19 | June 23 | .47 | 34.04 | 56 16 | 3.0 & 6.0 Topaz yellow & blue. |
| 40 | Rad. 4379 & 4376 | 19 | 31 | 3 | 30 | 8 | June 26 | .48 | 75.59 | 286 35 | 5.0 & 7.0 Yellow & bluish. |
| 41 | ϵ Cygni | 19 | 38 | 16 | 39 | 47 | June 25 | .48 | 38.04 | 135 0 | 5.0, eq. Yellow. |
| 42 | Σ 2576 | 19 | 40 | 28 | 56 | 42 | June 19 | .46 | 3.46 | 296 48 | 8.0, eq. White. |
| 43 | Piazzì xix. 320 & 321 | 19 | 47 | 29 | 70 | 0 | June 25 | .48 | 42.31 | 147 21 | 6.0 & 6.5 White. |
| 44 | θ Sagittæ, A, B. | 20 | 4 | 2 | 69 | 29 | June 19 | .46 | 12.33 | 326 48 | 6.0 & 8.0 White. |
| 45 | θ Sagittæ, A, C. | " | " | " | " | " | June 19 | .46 | 73.92 | 224 46 | 6.0 & 6.5 White. |
| 46 | ϕ^2 & ϕ^1 Cygni ... | 20 | 9 | 24 | 43 | 40 | June 26 | .48 | 338.06 | 323 33 | 3.5 & 4.5 Deep yellow & pale [blue. |
| 47 | ϕ^2 Cygni | " | " | " | " | " | June 26 | .48 | 106.96 | 173 12 | 4.5 & 7.0 Deep yellow & bluish [white. |
| 48 | 48 Cygni & Piazzì xx. 243 | 20 | 32 | 5 | 58 | 54 | July 14 | .53 | 178.56 | 175 6 | 6.0 & 6.5 White & yellow. |
| 49 | W.B. (2) XXI. 427 & 433 ... | 21 | 17 | 57 | 53 | 10 | July 18 | .54 | 365.00 | 302 44 | 6.0, eq. Yellow. |
| 50 | Gr. 3516 & 3517 | 21 | 31 | 40 | 23 | 52 | Jan. 6 | .01 | 179.84 | 25 44 | 6.0, eq. Yellow. |
| 51 | δ^1 & δ^2 Cephei | 22 | 24 | 12 | 32 | 16 | July 18 | .54 | 40.34 | 191 58 | 3.0 & 6.0 Yellow & blue. |

OBSERVATIONS

OF

THE SOLAR ECLIPSE OF 1866, OCTOBER 8;

OF

OCCULTATIONS OF STARS BY THE MOON

(WITH THE EQUATIONS DEDUCED FROM
THE OCCULTATIONS);

AND OF

THE METEORIC SHOWER OF 1866, NOV. 13-14;

MADE AT THE RADCLIFFE OBSERVATORY,
OXFORD,

IN THE YEAR 1866.

Occultations of Stars by the Moon.

1866, January 8. Disappearance of *h* Virginis, at the Moon's bright limb, at $14^h 21^m 15^s.0$, time by heliometer clock. Observed by Mr. MAIN with the telescope of the heliometer. By a comparison made at the time the clock was $1^m.9$ slow of the transit-clock, the transit-clock being $19^m.9$ slow of sidereal time. The observation tolerably good; the moon's motion very oblique. The star was near the moon's cusp.

| | h. | m. | s. |
|--|----|----|-------|
| Hence, Sidereal time of disappearance, | 14 | 21 | 34.9. |
| Oxford mean solar time, | 19 | 7 | 11.4. |
| Greenwich mean solar time, | 19 | 12 | 14.0. |

Using the usual notation, the elements for the computation are as follows:—

| | | | |
|--|-----|-------|---|
| R.A. of Zenith in arc, | 215 | 23 | 43.80 + $15.00 \times t$. |
| R.A. of Moon's centre in arc, | 201 | 40 | 26.40 + $0.4776 \times t + x$. |
| N.P.D. of Moon's centre, | 98 | 26 | 45.32 + $0.1418 \times t + y$. |
| Moon's hor. eq. parallax, | 54 | 15.30 | $\times \left(1 + \frac{m}{1000}\right)$. |
| Moon's semidiameter, | 14 | 48.52 | $\times \left(1 + \frac{n}{1000}\right)$. |
| Star's R.A. in arc, | 201 | 28 | 48.45 + e . |
| Star's N.P.D., | 99 | 28 | 23.30 + f . |
| Geoc. R.A. of corresponding point in arc, | 201 | 36 | 59.62 + e + $0.1457 \times t$ + $0.4912 \times m$. |
| Geoc. N.P.D. of corresponding point, | 98 | 41 | 10.39 + f + $0.0059 \times t$ - $2.8329 \times m$. |
| Geoc. distance of centre from corresponding point, | | | |

$$14' 48''.91 + 0.2275 \times \{ -e + x + 0.3319 \times t - 0.4912 \times m \}.$$

$$- 0.9732 \times \{ y + 0.1418 \times t \}.$$

$$+ 0.9732 \times \{ f + 0.0059 \times t - 2.8329 \times m \}.$$

Final equation,

$$-0''.39 = -0.2275 \times e + 0.9732 \times f + 0.2275 \times x - 0.9732 \times y - 0.0569 \times t - 2.8688 \times m - 0.8885 \times n.$$

1866, January 8. Reappearance of *h* Virginis at the unenlightened limb of the Moon, at $14^h 33^m 56^s.0$ time by heliometer clock, the clock being as in the preceding observation, $19^m.9$ slow of sidereal time. Observed by Mr. MAIN with the telescope of the heliometer. The reappearance took place six minutes earlier than the time given in the Nautical Almanac, but fortunately the eye of the observer was at the eye-piece of the telescope.

| | h. | m. | s. |
|---------------------------------------|----|----|-------|
| Hence, Sidereal time of reappearance, | 14 | 34 | 15.9 |
| Oxford mean solar time, | 19 | 19 | 50.4. |
| Greenwich mean solar time, | 19 | 24 | 53.0. |

The elements for the computation are:—

| | | | |
|-------------------------------|-----|-------|--|
| R.A. of Zenith in arc, | 218 | 33 | 58.80 + $15.00 \times t$. |
| R.A. of Moon's centre in arc, | 201 | 46 | 29.70 + $0.4776 \times t + x$. |
| N.P.D. of Moon's centre, | 98 | 28 | 32.79 + $0.1418 \times t + y$. |
| Moon's hor. eq. parallax, | 54 | 15.21 | $\times \left(1 + \frac{m}{1000}\right)$. |
| Moon's semidiameter, | 14 | 48.50 | $\times \left(1 + \frac{n}{1000}\right)$. |
| Star's R.A. in arc, | 201 | 28 | 48.45 + e . |
| Star's N.P.D., | 99 | 28 | 23.30 + f . |

Geoc. R.A. of corresponding point in arc, $201^{\circ} 38' 47''.27 + e + 0.1434 \times t + 0.5988 \times m$.
 Geoc. N.P.D. of corresponding point, $98^{\circ} 41' 15''.34 + f + 0.0086 \times t + 2.8280 \times m$.
 Geoc. distance of centre from corresponding point,

$$14' 49''.24 + 0.5085 \times \{ -e + x + 0.3342 \times t - 0.5988 \times m \} \\
- 0.8577 \times \{ y + 0.1418 \times t \} \\
+ 0.8575 \times \{ f + 0.0086 \times t - 2.8280 \times m \}.$$

Final equation,

$$-0''.74 = -0.5085 \times e + 0.8575 \times f + 0.5085 \times x - 0.8577 \times y + 0.0554 \times t - 2.7298 \times m - 0.8885 \times n.$$

1866, February 27. Disappearance of δ Leonis at the dark limb of the moon, observed by Mr. QUIRLING with the 10-foot equatorially mounted telescope and a mean solar chronometer, at $7^h 42^m 27^s.0$ time by chronometer. By a comparison made at the time this was found to correspond to $6^h 11^m 6^s.26$ time by the transit-clock, which was $22^s.12$ slow of sidereal time. The observation good.

| | h. | m. | s. |
|--|----|----|-------|
| Hence, Sidereal time of disappearance, | 6 | 11 | 28.4. |
| Oxford mean solar time, | 7 | 41 | 49.8. |
| Greenwich mean solar time, | 7 | 46 | 52.4. |

The elements for the computation are :—

| | |
|--|---|
| R.A. of Zenith in arc, | $92^{\circ} 52' 5''.70 + 15''.00 \times t$. |
| R.A. of Moon's centre in arc, | $140^{\circ} 31' 28''.50 + 0.5304 \times t + x$. |
| N.P.D. of Moon's centre, | $78^{\circ} 55' 52''.39 + 0.1377 \times t + y$. |
| Moon's hor. eq. parallax, | $56' 24''.22 \times \left(1 + \frac{m}{1000}\right)$. |
| Moon's semidiameter, | $15' 23''.67 \times \left(1 + \frac{n}{1000}\right)$. |
| Star's R.A. in arc, | $141^{\circ} 12' 7''.20 + e$. |
| Star's N.P.D., | $79^{\circ} 41' 58''.80 + f$. |
| Geoc. R.A. of corresponding point in arc, | $140^{\circ} 45' 30''.14 + e + 0.1041 \times t - 1.5970 \times m$. |
| Geoc. N.P.D. of corresponding point, | $79^{\circ} 2' 46''.30 + f + 0.0206 \times t - 2.3525 \times m$. |
| Geoc. distance of centre from corresponding point, | |

$$15' 24''.03 + 0.8776 \times \{ +e - x - 0.4263 \times t - 1.5970 \times m \} \\
- 0.4476 \times \{ y + 0.1377 \times t \} \\
+ 0.4482 \times \{ f + 0.0206 \times t - 2.3525 \times m \}.$$

Final equation,

$$-0''.36 = +0.8776 \times e + 0.4482 \times f - 0.8776 \times x - 0.4476 \times y - 0.4265 \times t - 2.4560 \times m - 0.9237 \times n.$$

Observation of the beginning of the Solar Eclipse of 1866, October 8.

The observation was made by Mr. LUCAS with the 42-inch achromatic telescope (placed on the elevated terrace of the Observatory) and the mean solar chronometer ordinarily in use. The sun was near setting and very tremulous. The chronometer was also heard with difficulty, and the observer has not much confidence in the observation.

Observed time of beginning, $4^h 25^m 23^s$.

By a comparison with the transit-clock made at the time, the chronometer was found to be $5^m 25^s.7$ fast on Oxford mean solar time.

| | h. | m. | s. |
|--|----|----|-------|
| Hence, Sidereal time of observation was, | 17 | 28 | 14.3. |
| Oxford mean solar time, | 4 | 19 | 57.3. |
| Greenwich mean solar time, | 4 | 24 | 59.9. |

Using the usual notation, the computed values of the elements for this time, taken from the Nautical Almanac, are as follows:—

| | ° | ' | '' | ''' |
|------------------------------------|-----|------|---|-----|
| R.A. of Zenith in arc, | 262 | 3 | 34.20 + $15.00 \times t$. | |
| App. R.A. of Moon's centre in arc, | 193 | 36 | 39.86 + $x + 0.4913 \times t - 0.0522 \times t - 1.9118 \times m$. | |
| App. N.P.D. of Moon's centre, | 95 | 35 | 16.70 + $y + 0.1550 \times t - 0.0148 \times t + 2.6435 \times m$. | |
| Moon's hor. eq. parallax, | 55 | 2.27 | $\times \left(1 + \frac{m}{1000}\right)$. | |
| Moon's augmented semidiameter, | 15 | 3.59 | $\times \left(1 + \frac{n}{1000}\right)$. | |
| App. R.A. of Sun's centre, | 193 | 57 | 13.27 + $e + 0.0382 \times t$. | |
| App. N.P.D. of Sun's centre, | 95 | 38 | 30.55 + $f + 0.0159 \times t$. | |
| Sun's eq. hor. parallax corrected, | | | 8.94. | |
| Sun's semidiameter, | 16 | 3.33 | $\times \left(1 + \frac{n'}{1000}\right)$. | |

Apparent distance of centres of Sun and Moon,

$$30' 57''.06 + 0.6574 \times \{e - x - 0.4009 \times t + 1.9118 \times m\} \\ + 0.7504 \times \{f + 0.0159 \times t\} \\ - 0.7508 \times \{y + 0.1402 \times t + 2.6435 \times m\}.$$

Final equation,

$$+ 9''.86 = + 0.6574 \times e + 0.7504 \times f - 0.6574 \times x - 0.7508 \times y - 0.3570 \times t - 0.7278 \times m - 0.9036 \times n \\ - 0.9633 \times n'.$$

OBSERVATIONS

OF THE

METEORIC SHOWER OF NOVEMBER, 13-14, 1866,

MADE AT THE

RADCLIFFE OBSERVATORY, OXFORD.

OWING to the uncertainty of the exact time of the expected meteoric display, a strict watch was kept up during the night of Monday, Nov. 12, as well as during the whole of the following night of Nov. 13, when it actually occurred.

Up to the very time when the meteors began to appear with frequency, that is, till about 11 o'clock, the appearance of the sky was unfavourable. The afternoon was clear, but shortly before 11^h, clouds suddenly made their appearance, and it began to rain. The clouds, however, quickly disappeared, and, though they interfered occasionally with the observations, they did not materially prevent the observing of the phenomena.

Mr. Lucas began to observe a few minutes after 11^h, and was joined by Mr. Quirling at midnight, and for about half an hour after this it was possible to make notes of the locality and appearance of the meteors, but afterwards the numbers increased so rapidly that it was impossible to do scarcely anything more than count them.

| Approx. Greenwich M.T. | Constellation or Place of Appearance. | Direction. | Magnitude as com- pared with Stars. | Colour, &c. | Notes. |
|------------------------------|--|------------------------------------|--|----------------|--|
| h. m. | | | | | |
| 11 9 | Gemini. | { E to S upwards about 45° } | 2 | Red. | |
| 15 | " | E to S | 2 | White. | |
| 25 | " | E to S | 1 | Red. | [the tower, A long train; the disappearance hidden by |
| 28 | " | W | | Red. | A long train. |
| 29 | " | E to S | 1 | White. | A long train. |
| 30 | Eridanus. | E to S | 1 | White. | Motion downwards. |
| 32 | Ursa Major. | E to S | 3 | White. | Motion upwards. |

| Approx. Greenwich M. T. | Constellation or Place of Appearance. | Direction. | Magnitude as com- pared with Stars. | Colour, &c. | Notes. |
|-------------------------------|--|------------|--|----------------|--|
| h. m. s. | | | | | |
| 11 35 | Gemini. | W | 2 | White. | |
| 38 | Ursa Minor. | W | 2 | Red. | |
| 40 | " | W | 3 | | |
| 44 | Ursa Major. | W | 3 | ... | To this time the observations were made on the grounds at the south front of the Observatory. After this Mr. Lucas removed with the chronometer to the terrace outside the octagon room. |
| 55 | " | Vertically | 3 | | |
| 56 | Lynx. | S | 2 | Red. | |
| 58 | Gemini. | S | 2 | Red. | |
| 59 | " | S | 1 | Red. | Two very near each other seen at an interval of one second; they moved in parallel paths over Orion. |
| 12 2 50 | Ursa Major. | W | 2 | Red. | |
| 2 50 | " | W | 2 | Red. | |
| 3 40 | Draco. | W | 3 | | |
| 4 10 | " | | 2 | Red. | |
| 5 20 | " | | 2 | Red. | |
| 6 30 | Cancer. | S | 1 | Red. | Up to this time Mr. Lucas had counted 14 small meteors which he had not time to register. |
| 6 30 | " | | 1 | | |
| 7 30 | Leo. | S | 1 | | |
| 7 55 | Ursa Minor. | W | | | |
| 7 55 | " | | 2 | | |
| 8 50 | Ursa Major. | W | 3 | | |
| 9 25 | Orion. | W | 1 | | Motion downwards. |
| 9 45 | Ursa Major. | W | 2 | | |
| 10 30 | Draco. | W | 2 | | |
| 10 30 | " | W | 2 | | |
| 10 40 | " | W | | | |
| 10 40 | " | W | | | |
| 11 47 | Leo. | W | | | |
| 12 5 | Ursa Major. | W | | | A train. |
| 12 | " | W | | | |
| 12 | " | . | 3 | | |
| 14 | Leo. | .. | 3 | | |
| 14 | " | | 2 | | |
| 15 | Canis Minor. | | 2 | | |
| 15 | " | | 2 | | |
| 15 | " | | 2 | | |
| 17 | Ursa Major. | | 3 | | A train. |
| 17 | Ursa Minor. | | 1 | | |
| 18 | Zenith. | | | | A train. |
| 18 | Canis Minor. | | | | A train. |
| 19 | Ursa Major. | | | | A train. |
| 19 | " | | 1 | | A train. |
| 19 | .. | | 1 | | A train. |
| 20 | Cancer. | | 1 | | |
| 20 | Orion. | | | | |
| 20 | Zenith. | | | | |

| Approx. Greenwich M. T. | Constellation or Place of Appearance. | Direction. | Magnitud. as com- pared with Stars. | Colour, &c. | Notes. |
|-------------------------------|--|------------|--|----------------|---|
| h. m. s. | | | | | |
| 12 20 30 | Zenith. | ... | 2 | | |
| 21 0 | Ursa Major. | ... | | | |
| 21 0 | " | ... | | | |
| 21 50 | Zenith. | ... | | | |
| 21 50 | Orion. | ... | | | |
| 22 10 | Gemini. | ... | | | |
| 22 10 | " | ... | | | |
| 22 40 | Cancer. | ... | 1 | Red. | |
| 23 0 | Ursa Major. | ... | | | |
| 23 15 | Orion. | ... | | | |
| 23 30 | Zenith. | ... | | | |
| 23 40 | Cancer. | ... | 1 | | |
| 23 40 | " | ... | 2 | | |
| 23 40 | " | ... | | | |
| 23 40 | " | ... | | | |
| 24 40 | Draco. | ... | 1 | | |
| 24 40 | " | ... | | | |
| 25 0 | " | ... | 2 | | |
| 26 10 | Ursa Minor. | ... | 2 | Red. | |
| 26 40 | Gemini. | ... | 1 | | |
| 26 40 | Ursa Major. | ... | | | |
| 27 0 | " | ... | 2 | | |
| 27 0 | " | ... | | | To this time 22 more smaller meteors had been counted. |
| 27 40 | " | ... | | ... | |
| 28 40 | " | ... | 1 | | |
| 28 40 | Orion. | ... | 2 | | |
| 28 40 | Boötes. | ... | 2 | | |
| 29 10 | " | ... | | | |
| 30 30 | Zenith. | ... | | | |
| 30 30 | " | ... | | | |
| 31 | Leo Minor. | ... | | ... | To this time 22 more additional meteors had been counted (between 27 ^m 0 ^s and 31 ^m 0 ^s .) |
| 31 | " | ... | 1 | | |
| 31 | " | ... | 1 | | |
| 31 | " | ... | 1 | | |
| 31 | " | ... | 1 | | |
| 31 | " | ... | 1 | | |
| 31 | Zenith. | ... | | | |
| 31 | " | ... | | | |

After this time the numbers increased so rapidly, that it was necessary to suspend all specific observation of them, excepting the counting.

The following table gives an abstract of the numbers:—

| Approx. Greenwich M. T. | Numbers counted in the Interval. | Notes. |
|-------------------------------|---|--|
| h. m. s. | | |
| 12 31 0 | | |
| 31 40 | 4 | |
| 31 50 | 1 | In Orion. |
| 31 50 | 1 | In Ursa Major. |
| 31 50 | 3 | In the north. |
| 32 50 | 4 | |
| 33 20 | 6 | " |
| 34 10 | 4 | |
| 35 0 | 3 | |
| 35 30 | 4 | At this time lightning from a dark bank of cloud on north horizon. |
| 35 50 | 3 | |
| 36 50 | 4 | |
| 37 30 | | Twelve smaller counted. |
| 38 10 | 2 | In the zenith. |
| 38 30 | 11 | |
| 38 40 | 11 | |
| 39 40 | 5 | |
| 40 40 | 6 | |
| 41 10 | 8 | |
| 41 40 | 12 | |
| 42 10 | 8 | |
| 42 20 | 11 | |
| 43 40 | 14 | |
| 44 40 | 15 | |
| 45 40 | 24 | |
| 46 40 | 22 | |
| 47 40 | 19 | |
| 48 40 | 38 | |
| 49 40 | 18 | |
| 50 40 | 20 | |
| 51 40 | 30 | |
| 52 40 | 50 | |
| 53 40 | 30 | |
| 54 40 | 22 | |
| 55 40 | 28 | |
| 56 40 | 22 | |
| 57 40 | 30 | |
| 58 40 | 34 | |
| 59 40 | 40 | |
| 13 0 10 | 30 | |
| 0 40 | 60 | |
| 1 40 | 65 | |
| 2 40 | 80 | |
| 3 40 | 95 | |
| 4 40 | | |

| Approx. Greenwich M. T. | | | Numbers counted in the Interval. | Notes. |
|-------------------------------|----|----|---|--|
| | h. | m. | s. | |
| | | | 82 | |
| 13 | 5 | 40 | 106 | At the rate of 53 per minute. |
| | 7 | 40 | 155 | „ 78 „ |
| | 9 | 40 | 123 | „ 123 „ |
| | 10 | 40 | 107 | „ 71 „ |
| | 12 | 10 | 148 | Clouds. |
| | 15 | 40 | 190 | |
| | 19 | 40 | 235 | A large meteor with comet-like appearance in Orion at this time. |
| | 23 | 40 | 168 | |
| | 28 | 40 | 65 | Interrupted by clouds for 20 ^m . |
| | 31 | 40 | 1 | In the zenith; very red. |
| | 51 | 10 | 66 | |
| | 53 | 40 | 21 | |
| | 56 | 10 | 42 | |
| 14 | 0 | 0 | 28 | |
| | 2 | 40 | 28 | |
| | 6 | 30 | 22 | |
| | 8 | 10 | 1 | With a long white train. |
| | 9 | 10 | 42 | |
| | 12 | 40 | 20 | |
| | 15 | 10 | 1 | Burst in the east. |
| | 16 | 0 | 19 | |
| | 19 | 10 | 28 | |
| | 24 | 10 | 16 | |
| | 28 | 10 | 13 | |
| | 31 | 10 | 16 | |
| | 35 | 10 | 8 | |
| | 38 | 40 | 2 | |
| | 39 | 40 | 2 | |
| | 40 | 10 | 19 | In the west. While recording this number, the room was illuminated by the bursting of a large white meteor near Lyra (S.P.), of which Mr. Lucas caught a glimpse through the window. |
| | 45 | 10 | 19 | |
| | 50 | 0 | 11 | |
| | 53 | 50 | 17 | |
| | 58 | 10 | 17 | Wind rising. |
| 15 | 3 | 40 | 23 | At this time Mr. Lucas went to the west terrace, and in the interval before the next recorded time counted the numbers given, ten in the east and thirteen in the west. |
| | 10 | 10 | 11 | |
| | 13 | 40 | 11 | Five in the east and six in the west. |
| | 20 | 40 | 12 | One of them very bright. |
| | 26 | 40 | 11 | |
| | 32 | 0 | 11 | |
| | 39 | 0 | 7 | |
| | 43 | 40 | 7 | |
| 15 | 46 | 20 | 1 | White; in Lyra. |
| 15 | 46 | 20 | 1 | White; in Auriga. |
| | 48 | 40 | | |

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| Approx. Greenwich M. T. | | | Numbers counted in the Interval. | Notes. |
|-------------------------------|----|----|---|--|
| h. | m. | s. | | |
| 15 | 55 | 20 | 10 | |
| | 57 | 40 | 4 | |
| 16 | 0 | 50 | 5 | The wind has increased to the strength of 4. |
| | 6 | 0 | 6 | |
| | 9 | 40 | 2 | From Aldebaran. |
| | 9 | 40 | 3 | In the eastern half of the sky. |
| | 13 | 40 | 3 | One in the east and two in the west. |
| | 17 | 10 | 6 | Two east, and four west. |
| | 21 | 0 | 10 | Four east, and six west. |
| | 24 | 40 | 1 | East. |
| | 27 | 40 | 5 | Three east, and two west. |
| | 32 | 20 | 1 | East. |
| | | | | The observers (Mr. Quirling and Mr. Lucas) took a rest of nearly 40 minutes. |
| 17 | 10 | 0 | | Zodiacal light visible. |
| | 13 | 40 | 7 | |
| | 16 | 40 | 5 | |
| | 18 | 30 | 1 | 1st mag.; white; from Draco eastward. |
| | 22 | 40 | 1 | 1st mag.; blue; from Leo eastward. |
| | 22 | 40 | 4 | |
| | 28 | 0 | 2 | |
| | 28 | 55 | 1 | 1st mag.; white; from Draco westward. |
| | 35 | 0 | 3 | |
| | 36 | 0 | 1 | 1st mag.; reddish; from Ursa Major northward. |
| | 40 | 10 | 5 | |
| | 44 | 0 | 1 | 1st mag.; reddish; from Leo vertical. |
| | 48 | 0 | 2 | 1st mag.; from Leo. |
| | 51 | 10 | 4 | Through Leo and Gemini. |
| | 56 | 0 | 3 | Through Leo and Boötes. |
| 18 | 0 | 0 | 1 | 1st mag.; in Boötes. |

The chronometer was compared with the transit-clock, and it was found to be 20^s fast on Greenwich mean time. The observed times have all been corrected for this error.

In general Mr. Lucas kept the record of the observations, but, during the greater part of the time the observers (Mr. Quirling and Mr. Lucas) each counted in his own division of the heavens, Mr. Quirling watching the portion south of the prime vertical, and Mr. Lucas the portion north of the prime vertical.

The whole number of meteors counted throughout the night, was 3087, of which about 2000 fell between 13^h and 14^h. Those which left trains were the brightest, the train remaining visible only for a few seconds in general.

In one particular instance, however, (that at 13^h 23^m 40^s) the train was

visible for some minutes. This meteor, which appeared in the belt of Orion, was very bright, and left its train apparently attached to ζ Orionis, giving to that star the appearance of a comet with a tail of nearly 3° in length, standing out at a position angle of 45° ; it then detached itself from the star, keeping up the same route as the meteor, but forming itself into a ball of faint cometic appearance of about $15'$ in diameter, which grew dimmer and more diffused, and disappeared altogether after a lapse of 4 or 5 minutes, at a distance of nearly 1° from ζ Orionis, and at a position angle of about 110° .

In several instances the meteors disappeared for an instant as if hidden by the clouds, and then reappeared, following their former course (generally downwards). This was observed only by Mr. Lucas who was watching towards the north east. The greatest attention was directed towards the eastern portion of the sky, as it was from this quarter that the display was expected.

It may also be mentioned that as both observers were on the eastern terrace, a considerable portion of the western sky was hidden from their view.





OXFORD.

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